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ABSTRACT

Tests of intelligence and structured measures of emotional status, aptitudes, and achievement alone do not suffice in predicting the vocational adjustment of the mentally retarded. Since the main concern is the evaluation of the many aspects of behavior which make the individual a unique and changing person, a format was developed which included a particular battery of psychological tests which assessed intellectual capacity and functioning, personality characteristics, academic achievement, aptitudes, and preferences. Tests were selected for their usability and appropriateness with the mentally retarded. The importance of the format is that it included the author's interpretations and insights based on the examinee's responses and reactions to the testing program. The test findings were critiqued, and the clinical interpretations were presented. Some conclusions and recommendations were: the focus of the assessment should be on the identification of areas of strength rather than on weakness; social competence is one of the most important determinants for vocational functioning; it is more appropriate to make an assumption of positive adaptation on a meaningful criteria of employability and social integration until negative evidence appears, rather than to assume a poor prognosis until positive evidence appears; and finally that predictive measures should be more as estimates of preparation for the next step in training or placement than as determiners of the future. (RC)

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ABSTRACT

A FORMAT IN ASSESSING THE MENTALLY RETARDED FOR VOCATIONAL ACTIVATION UTILIZING THE CLINICIAN'S INSIGHTS

By

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A Dissertation Submitted in Partial Fulfillment of
The Requirements for the Degree of
Doctor of Philosophy

Walden University
July 1974

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The writer contended that the tests of intelligence and structured measures of emotional status, aptitudes and achievement alone do not suffice in predicting the vocational adjustment of the mentally retarded. A review of the related literature disclosed a lack of information about the "in depth" assessment of the mentally retarded in relation to their vocational involvement. The unique qualities and characteristics of examinees were not analyzed adequately nor were the usual tests sufficiently descriptive of the retardates' potential for dealing with the world of work. Therefore, a format was developed for the assessment of the mentally retarded. Since the main concern was the evaluation of the many aspects of behavior which make the individual a unique and changing person, the format included a particular battery of psychological tests which assessed intellectual capacity and functioning, personality characteristics, academic achievement, aptitudes and preferences. The tests were selected for their usability and appropriateness with the mentally retarded.

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The importance of the format is that it included the writer's interpretations and insights based on the examinees' responses and reactions to the testing program. The test findings were critiqued and the clinical interpretations were presented.

Some major conclusions and recommendations were:

The focus of the assessment should be on the identification of areas of strength rather than on weaknesses, and that the weaknesses should not be used to eliminate the individual from receiving vocational rehabilitation services. Instead weaknesses and other interfering problems should be countered with remedial services.

Social competence appears to be one of the most important if not the essential determinant for the ability to function vocationally.

It is more appropriate to make an assumption of positive adaptation on some meaningful criteria of employability and social integration until negative evidence appears, rather than

to assume a poor prognosis until positive evidence appears.

Predictive measures should be used more as estimates of preparation for the next step in training or placement than as determiners of the long-range future.

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CHAPTER I

INTRODUCTION

The Why, The What, and The How of Assessing the Mentally Retarded for Vocational Activation

During the first half of this century, psychologists interested in mental retardation worked mainly in the areas of research and administration. Around 1950, changing social conditions led to an increased demand for the global treatment of the retarded. Since then, there has been an increase in psychological research concerned with the mentally retarded, but, until very recently, individuals conducting research appeared to be engaged primarily in pure, experimental investigations, and were relatively detached from the service areas of retardation. DiMichael has stated that the first published study on the rehabilitation of mental retardates was made by Leonard Rockower in March, 1948.[1] It was based on eighty-three retardates

[1]S. G. DiMichael, "Historical Development of Rehabilitation for the Mentally Retarded," Journal of Rehabilitation, XXVIII, No. 6 (1962), 24-6.

who had applied for service to the New York Division of Vocational Rehabilitation.

The ultimate objective of the rehabilitation effort became the vocational activation of the mentally retarded and, wherever possible, placement into suitable employment. Its successful achievement was the foundation of the more useful productive and happy life, the end result of the vocational rehabilitation process.

Our culture is highly work-oriented. The most significant status recognition comes from what one does or accomplishes in the way of work. The vocational rehabilitation program must be sensitive to the existing cultural values. It is much more likely to be successful if it reflects these values, and more likely to fail if it develops in contradiction to them.

In line with this, the writer has compiled a philosophy of vocational activation of the mentally retarded that he believes to be consistent with the predominant cultural values of the society, as well as the principles advanced by some of the leaders in the field of rehabilitation of the retarded:

1. In our work-oriented society, positive attitudes will generally be expressed

toward the worker, and negative ones towards the idle. The retardate's adjustment will be enhanced by the community attitudes he enounters.

2. Work lends adult status to a retardate, and thus adds to his dignity in the sight of others.
3. A working retardate is generally a happier person. Work gives self-esteem and a feeling of accomplishment and worth.
4. The family of the working retardate is generally a better adjusted family. Since work tends to make the retardate more acceptable, it engenders positive attitudes in the family, benefiting the retardate indirectly.
5. A retardate capable of working will be less likely to become an economic burden to his family or society.
6. A working retardate contributes to the economic welfare of society.
7. Idleness can lead to nonadaptive or maladaptive behavior.

The essential question may be posed as to which retardates are capable of productive and meaningful work. The answer to this question introduces generally the study of the writer's special field of interest, that is, the psychological assessment of the mentally retarded for vocational activation. Put it another way, it is the means by which the psychologist may predict the vocational success or lack of success of the mental retardate. The problem of assessing the vocational potential of the mentally retarded by means of psychological evaluation has received relatively little attention. There is only a handful of reports of studies in this area in the literature. (This as well as other related literature will be reviewed in a later chapter of this study.) This could reflect the belief that the evaluation of the mentally retarded does not differ from that of other groups, including the intellectually normal or average person. This is true to a great extent. The mentally retarded are basically similar to other human beings. They differ mainly in degree, and perhaps in the patterns of their characteristics, rather than in being qualitatively different or unique.

The procedures and instruments used in evaluation of the mentally retarded are essentially the same as those used in evaluating other individuals. Their use with the mentally handicapped involves the same problems of reliability, validity, and the general inadequacy and limitations of such instruments and procedures. A well-trained psychologist is qualified to test and evaluate the mentally retarded. However, there are certain factors which make the problems somewhat different from evaluating the intellectually normal, the physically handicapped or the emotionally disturbed. One of these is the greater importance of identifying and capitalizing upon any assets or specific abilities, since abilities and aptitudes are not evenly distributed within the individual. Another factor is that with limited abilities it is more important that they be accurately estimated, and the individual enabled to utilize them to the utmost. Most people can "get by" without ever needing to use all their reserve. However, the mentally retarded have so little that they cannot afford to maintain untapped reserves. If they are to compete, they must function close to their potential. The position of this treatise dealing with the assessment of the potential for

vocational functioning are also dealt with more fully in another chapter.

A rather exhaustive review of the literature together with this writer's overall experience in the field has revealed confusion, contradiction, and dissatisfaction concerning the efficiency of the psychological assessment techniques employed in order to obtain predictive measures of functioning.

The writer has been professionally involved in depth with "person-to-person" experiences, having functioned as a psychiatric social worker, guidance counselor, and for the past ten years, as a psychologist, in school systems and on a consulting basis. He has concluded that a person cannot be considered as a constant in any measurement study, and that the conclusions from any such study are not wholly valid. He also has concluded that there is very much more about the uniqueness of any fellow human which we tend to lose sight of in making professional judgments for predictive purposes.

The principal tool for establishing the presence of mental retardation is the tests which have been constructed to measure intellectual capacity and functioning. However,

it has been found that the level of a person's adaptive behavior (how well the individual solves problems in his environment, and how well he adapts to the behavioral expectation and standards of society) can be predicted with only moderate efficiency from knowing his measured intelligence. The current tests of intelligence and structured measures of emotional status, aptitudes, and scholastic preparedness do not seem to be adequate in predicting the feasibility and ability for the vocational activation of the mentally retarded. With this in mind, the author has constructed this question: "Are the usual or standardized psychological testing techniques sufficient to provide the information necessary for predicting the mental retardate's readiness (potential) for participating in the world of work?" As is pointed out in the next chapter concerning the review of the literature, a wealth of reporting of the prediction of success or failure of the mentally retarded relating to their vocational activation is available. However, the premise remains that there is still a lack of "in depth" assessment of the mentally retarded by clinically observable techniques and experiences encountered by an assessor. Curiously,

in personal discussions, collaborations, and professional conferences with other professionally qualified psychologists, they have become aware of the profound importance of their clinical insights in their evaluation of the mentally retarded in reference to vocational activation. However, a rather exhaustive review of the literature has not revealed any literature which specifically deals with this aspect of the assessment. It is, therefore, hoped that a pattern of special insights will evolve in the individualized assessment of the mentally retarded which can be shared with colleagues and others who are concerned with this special area of assessment.

The purpose of the study then was to provide a "guide" or "guidelines" which could be utilized practically and could be adjunctive to the other means employed for the assessment of the mentally retarded in relation to their feasibility and ability for vocational activation. It was not intended that the guide be used as a "hard and fast" technique. Its proposed use could be valued and employed as an additional assessment aid. It could serve as a format for the assessor in searching out the insights and clues which have implications for the mental retardate's

employability. Perhaps this aid will encourage the thought and feeling that the mentally retarded, as an assigned exceptional group of people, are, after all, different from one another too, with varied personalities, capacities, aptitudes, assets, deficits, needs, preferences, etc. They are people deserving of the same rights, benefits, and considerations as for any citizen within any society. Perhaps the personal reward for the work will be to help eliminate the assignations of "mental retardate," "exceptional," and "special."

Because of the nature of the undertaking, the writer has maintained a flexible and somewhat unstructured approach in the treatment of his subject matter, such as reviewing the past and continuing notes of his assessment sessions and the formally prepared reports to the referring agent, citing both test and clinic information and insights from such material. These assessments have served to lend direction to the extension of vocational rehabilitation services to the mentally retarded. The literature specifically related to the psychological assessment of vocational readiness and the potential of the mentally retarded, and the inherent problems concerning the assessment process

have been reviewed and critiqued on the basis of the writer's independent experiences.

The writer has reached the position that both the insights and the estimates obtained from the testing techniques are important in the assessment. As previously touched upon, the writer is of the opinion that attempts to validate any method or means by which one can predict the future course of functional efficiency, especially for the mentally retarded, is not a distinct probability. At best one can only estimate on the basis of what is presented to him at any given time. There are far too many variables encountered with the person, his personal associations, his environment, let alone the variables, when individually studied, have little meaning for predictiveness, and only take on some significance when they are associated with other variables. Furthermore, in responding to the practical problems of predicting possible outcomes for individuals, the clinician (diagnostician in such a position) quite often depends on research that has empirically established relationships between certain classifications and predictive criteria. The research that the clinician draws on can itself vary in the degree

of its direct relationship to the individual case. It may be a definitely established correlate of a classification, or on the other hand, it may simply pertain to certain variables which the clinician observes in an individual. The clinician, for instance, may observe that the individual is hyperactive or is very concrete in his thought processes. Assessment of these variables may not yet be incorporated into a classification system, but the clinician is familiar with research that relates these variables to predictive criteria. Diagnosis is often criticized because predictions based on research results are not confirmable in the case at hand, and research is said to be invalid because it did not lead to an accurate prediction. Individual predictions are statements of probability, and lack of confirmation does not refute either the underlying research or diagnosis. In effect, making predictions in the absence of empirically founded correlates is often necessary. However, these predictions are legitimate when the decisions so formed are not terminal but can be altered easily. This is the writer's defense for excluding any statistical discourse from this study. The reader is referred to Zubin's paper,

wherein he talks about clinic and actuarial methods for predictability. He stated:

> The goal, after all, is the understanding and prediction of human behavior, and to achieve this goal, the observations of the clinician and his hunches as well as the verification of these hunches by the actuary are essential. The question of whether the actuarial approach is superior to the clinical is tantamount to asking whether the sperm is more important than the ovum. Both are equally important and no progress can be made with one alone. In fact, exercising one alone in isolation from the other is a rather unproductive form of activity despite the satisfaction it may afford.[1]

In effect, the contrast between actuarial and clinical prediction is an unwarranted one. The two types of prediction supplement each other, and the two should be used to improve each other reciprocally.

The focus of this study involved a detailed description of the insights derived from the psychologist's range of experience which have significance for vocational planning with the mentally retarded. The focus includes contacts with the client, the parents, and the referring agent, as well as any other source of information. In the

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[1]Joseph Zubin, "Clinical Versus Actuarial Prediction." In Anastasi, A. (ed). Testing Problems in Perspective (Washington, D. C.: American Council on Education, 1966), pp. 625-37.

main, however, the insights were obtained from the assessment session with the client which normally included an exploration and assessment of his affective functioning, self-concept, frustration behavior, emotional tone, motivation, intellectual capacity and functioning, aptitudes, preferences, and academic level.

Based on the insights derived from both the psychological tests and the clinical observations, a useable judgment format or guide was developed to assist an assessor in focusing on the responses of the client which may have important implications for the vocational rehabilitative process. This may have value in prescribing for special problems such as ~~for~~ remediation and therapeutic counseling in anticipation of vocational activation. The findings or responses were translated into clinical interpretations for the examiner's use in order that he might obtain a more encompassing assessment of the client's functional status.

As with any discussion of a special problem, some essential background information of the field should be provided for the reader who may not be professionally versed or oriented to the writer's discipline and

philosophy. In relation to this, a broader definition and concept of mental retardation may be of help in focusing on the study.

The Definition and Concept of Mental Retardation

In attempting to acquire a knowledge of the subject of mental retardation a person can scarcely avoid becoming confused by the bewildering variety of terms, definitions, and estimates of prevalence. He will encounter such terms as moronity, feeblemindedness, mental deficiency, imbecility, idiocy, amentia, etc. All of these terms have been popular at one time or another and have been advocated by various experts in the field. Shifts in popularity from one term to another have come about because of the stigma which has invariably become attached to a particular term after a period of use. The advocacy of any new "name" is a misdirected effort, because no term can for long escape the stigma which comes to be attached to a label as a result of misunderstanding of the essential nature of that which is being described. The current most widely used term is "mental retardation." Mental retardation can be described simply as an inadequacy of general intellectual functioning which has existed

from birth or childhood. The basic definition of mental retardation adopted by the American Association on Mental Deficiency (AAMD) in May, 1960, as submitted by Heber is:

> Mental retardation refers to sub-average general intellectual functioning which originated during the developmental period and is associated with impairment in adaptive behavior.[1]

Adaptive behavior is manifested in three principal manners: (1) maturation, (2) learning, and (3) social adjustment. Each of these three factors assumes primary importance during a certain stage of the developmental period. Thus, maturation, which refers to the rate of development of sensory motor skills such as sitting, walking, talking is the important criterion of adaptive behavior during the pre-school years. Learning, defined as ability to acquire academic skills, is important during the school-age years. Social adjustment assumes primary importance on the adult level.

The principal indicators of social adjustment at the adult level are, according to Heber:

> the degree to which the individual is able to maintain himself independently in the community

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[1]R. F. Heber, "A Manual on Terminology and Classification in Mental Retardation," American Journal of Mental Deficiency, LXV (June, 1961), 499-500.

> and in gainful employment as well as by his ability to meet and to conform to other personal and social responsibilities and standards set by the community.[1]

The quality of interpersonal relationships is an important manifestation of adaptive behavior during the pre-school and school periods. However, social adjustment is considered the primary criterion of adaptive behavior only at the adult level. Perhaps the most important characteristic of Heber's definition is the emphasis on the co-existence of deficits in both adaptive behavior and general intellectual functioning. Historically, reliance has shifted between measured intelligence and adaptive behavior as the basis for determining mental retardation. In one sense the principal indicator of mental retardation is still subaverage intellectual functioning. If an individual is subaverage in general intellectual ability but not impaired in adaptive behavior, the assumption is that his adaptive behavior reflects a higher level of intelligence and casts doubt on tests of the individual's intellectual functioning. If the individual does not

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[1]R. F. Heber, "A Manual on Terminology and Classification in Mental Retardation," American Journal of Mental Deficiency, LXIV, Monograph Supplement (May, 1959).

demonstrate subaverage general intellectual ability, but is impaired in adaptive behavior, the assumption is that factors other than intellectual ability are responsible for his adaptive impairment. In effect, the definition provides a double check on impaired intellectual functioning. According to the AAMD definition, the emphasis is on present behavior rather than etiology and the absence of statements implying that mental retardation is irreversible. Doll maintained that there was a distinction between mental deficiency (synonymous with feeblemindedness) and intellectual retardation.[1] Intellectual retardation was not of constitutional origin and eventual social competence was possible.

In 1962 Doll indicated acceptance of the AAMD inclusive definition of mental retardation, but insisted that mental deficiency is a specific type of mental retardation, that is,

> (1) developmentally manifest, (2) based upon structural defect, and (3) such as to render the individual socially incompetent. Such deficient retardation, caused by inferiority

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[1]E. A. Doll, "Feeblemindedness Versus Intellectual Retardation," American Journal of Mental Deficiency, LI, (May, 1947), 456-9.

> or maldevelopment of the central nervous system, is irreversible.[1]

Adams offered a point of view wherein she considered mental retardation to be a social product, that is, the effect of interactions between individual and a set of social values.[2] In this view mental retardation is not regarded as a personal flaw independent of a particular social context. Thus, the condition we call "cultural-familial retardation" arises out of a disparity between what an individual expects out of his own culture and what another culture expects out of him. Adams made a strong case for the social interpretation of mental retardation. For her, mental retardation is a reversible social artifact.

The writer's further research of hundreds of other definitions of mental retardation offered by the professionals in the field, indicates that Sarason's

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[1]E. A. Doll, "A Historical Survey of Research and Management of Mental Retardation in the United States." In E. P. Trapp and P. Himelstein, (eds.), Readings on the Exceptional Child (New York: Appleton-Century-Crofts, 1962), 21-69.

[2]Margaret Adams, Mental Retardation and Its Social Dimensions (New York: Columbia University Press, 1971).

psycho-social definition of mental retardation is most usable for direction in the assessment process, that is,

> mental retardation refers to individuals who, for temporary or long standing reasons, function intellectually below the average of their peer groups but whose social adequacy is not in question, or if it is in question, there is the likelihood that the individual can learn to function independently and adequately in the community.[1]

Actually for the purposes of this study, a definition of exacting proportions is of little value, since the assessment for vocational activation should reflect upon the individual's underdevelopment or lag in (1) intellectual input and output, (2) acquisition of information (academic and social requirements), and (3) adaptation (personal/social receptiveness and expressiveness). Finally, the assessor has the responsibility of establishing and interpreting any or all of these deficits in functioning in order to qualify the person for vocational rehabilitation services and to lend direction to the referring agency and to the individual for the enhancement of his ability to function vocationally.

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[1]S. B. Sarason, Psychology of Exceptional Children, ed. by W. W. Cruickshank (New York: Prentice Hall, 1955), pp. 440-42.

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CHAPTER II

REVIEW OF THE LITERATURE

General Discussion

This chapter reviews the important research relating to the assessment of the adult mentally retarded for their vocational adjustment and activation. Since the 1963 report of the President's Panel on Mental Retardation, there has been an increasing emphasis on services to retarded adults, and the need for prognostic information has been increasingly felt. Although it has long been recognized that a high proportion of mildly retarded people do in fact make reasonably favorable adaptations to community life, finding employment, marrying, and in general maintaining an independent life, the conditions distinguishing this group from those who fail have not been well understood. The review of the literature should help the reader to acquire a more vivid understanding of the problem and perhaps to relate the conclusions of these reports to his own endeavors.

During the past fifty years, literally hundreds of studies have been reported which addressed themselves in one way or another to the problem of predicting adult success in the retarded. The signal failure of this mass of investigations to identify clear guidelines to effective prognosis reflects not only the complexity of the problem but also the inaccuracy of most of the research directed towards it. Wolfensberger sharply criticized the whole body of research, contending that it has suffered from five serious shortcomings, namely, (1) poor research design and control, (2) lack of cross validation of findings, (3) lack of confirmation of even the most tenuous results across different studies, (4) almost exclusive emphasis on variables associated with the retarded person to the neglect of variables inherent in the training and placement process or in work situations, and (5) the assumption of homogeneity in the criteria of success among a wide range of retarded persons and working situations.[1]

The writer agrees with Wolfensberger's estimate of the literature since the survey of the total literature

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[1]W. Wolfensberger, "Vocational Preparation and Occupation," in Baumeister, A. A., ed., Mental Retardation, Appraisal, Education and Rehabilitation (Chicago: Aldine Publishing Company, 1967).

yielded few studies which gave a valid and reliable basis for making anything but the broadest kind of predictive judgments. The attempt to formulate a basis for the predictive evaluation of the retarded person for successful adjustment in adult life has suffered from oversimplification of the nature of success and from a proliferation of fragmented studies of isolated predictors.

The literature in general fell irto four types of reports concerning the prognosis of adjustment: (1) reports which described operating procedures for selecting, training and placing retarded clients on a casework basis without the use of actuarial information; (2) follow-up studies which reported the social histories of selected groups of retarded persons, reporting frequencies of successes and failures with some attempt to describe their differentiating characteristics; (3) studies which attempted to validate isolated variables as predictors of success or failure; and (4) studies which attempted a more sophisticated multivariate analysis across multiple predictors and multiple criteria.

It was easy to speak of success and failure in adult adjustment, but not so easy to determine what one meant by these terms. Kolstoe and Shafter have pointed to the

contradictory nature of many of the findings reported on the predictors of vocational success and failure.[1] They suggested that this arose in large part from the false assumption of homogeneity in success-failure populations.

R. L. Thorndike, in connection with the problem of predicting over- and under-achievement in school children, commented that a generally prevailing source of error in prediction research was failure to note heterogeneity in the criterion variable.[2] If there were different identifiable subgroups within a general population for which different standards of performance may have held this must have reflected in the construction of experimental and statistical designs. Similarly, terms like "Success" and "Failure" were in themselves meaningless unless the referent variables were specified, and with sufficient clarity to avoid ambiguity.

The multivariate nature of adult adjustment of the retarded required careful avoidance of semantic confusion. Bower, for example, employed as a criterion variable a

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[1]O. P. Kolstoe and A. J. Shafter, "Employability Predictions for Mentally Retarded Adults; a Methodological Note," American Journal of Mental Deficiency, LX (August, 1961), 102-9.

[2]R. L. Thorndike, The Concept of Over-and Under-Achievement (New York: Teachers College, Columbia University, 1963).

measure which he called "social adjustment," and which consisted of the Vineland Social Maturity Quotient corrected for Stanford-Binet intelligence quotient.[1]

That this might well have been a useful measure was not questioned, but it was a different measure than that usually associated with the term "social adjustment." This was a source of considerable confusion in Bower's analysis, because no attempt was made to validate the concept against any other form of observable social behavior.

Kolstoe and Shafter have pointed out that "employable retarded persons" were by no means a homogeneous group.[2] They possessed a wide range of occupational and social skills, personal characteristics including appearance, habits of work and the like. These may have been summed up as a variety of predictors of employment or as descriptions of persons actually employed. Actual employment, however, implied that an employer and an employment situation contained variable characteristics which interacted with those

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[1]W. C. Bower and A. Switzer, Adjustment of the Retarded: A Research and Demonstration Project. Project Report on OVR-RD-330C (Hartford, Conn., Connecticut Association for Retarded Children, 1962).

[2]O. P. Kolstoe and A. J. Shafter, "Employability Predictions for Mentally Retarded Adults; a Methodological Note," American Journal of Mental Deficiency, LX (August, 1961), 182-89.

of the employee. One might have expected quite different factorial elements constituting employability, for example, under open competetive conditions and under sheltered conditions, or with employers with a policy of "hiring the handicapped" as against those with negative predispositions toward mental retardation.

Most of the studies purporting to show relationships of predictors to criterion variables treated prediction in a systematic rather than in a historical frame of reference (e.g., Taylor,[1] Bower,[2] Stephens[3]). That is to say, independent variables (predictors) and dependent variables (criteria) were measured within the same time period on a given population sample rather than over a time interval. Prediction in this case could have referred only to the probability that variance in one set of measures (predictors) contributed to variance in another set of measures

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[1]James B. Taylor, "Personality and Ability in the Lower Intellectual Range: A Study of Assessment Methods," (Seattle, Wash.: Institute of Social Research, 1964).

[2]W. C. Bower and A. Switzer, Adjustment of the Retarded: A Research and Demonstration Project. Project Report on OVR-RD-330C (Hartford, Conn., Connecticut Association for Retarded Children, 1962).

[3]W. B. D. Stephens, Success of Young Male Adult Male Retardates (Ann Arbor, Mich.: University Microfilms, Inc., 1964).

(criteria); it did not mean that scores obtained at one period in time would have predicted criterion outcomes at a later period in time. From the point of view of practical vocational counseling, however, it was the latter type of prediction that was truly needed. The problem represented here was a difficult one, because it involved the questions (a) of the stability of predictor measures over time, and (b) of the effects of intervening experience, including treatment and training on the predictive value of the test variables. The work of Parnicky made it clear that the reliability of predictors tended to decrease over time and training.[1]

Shulman's research was virtually alone in attempting to evolve a developmental foundation for vocational prediction.[2]

The general run of longitudinal studies, such as those of Kennedy and Baller and Charles, were purely

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[1]J. J. Parnicky and H. Kahn, Evaluating and Developing Vocational Potential of Institutionalized Adolescents (Bordentown, N.J.: E. R. Johnstone Training and Research Center, 1963).

[2]L. S. Shulman, The Vocational Development of Mentally Handicapped Adolescents: An Experimental and Longitudinal Study. (USOE, BEH, Proj. 5-0981). (East Lansing, Mich.: Michigan State University, Educational Publication Services, 1967).

descriptive of outcomes over time and provided no discriminant measures.[1, 2]

The absence of longitudinal studies relating predictive measures to coherent theories of development and learning made most of the attempts at scientific prediction of the status of the retarded of dubious value for practical vocational considerations and counseling. Until this could be remedied, the subjective judgments of experienced clinicians based on sensitive contact with the client would remain far more useful even though they lacked the empirical precision which scientific procedures should make possible. Much of the research covered in this chapter, therefore, was not particularly usable by the clinician in his assessment procedures (and format). However, it was by no means without value because it was probably a necessary prelude to truly scientific prediction.

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[1]R. J. Kennedy, A Connecticut Community Revisited: A Study of the Social Adjustment of a Group of Mentally Deficient Adults in 1948 and 1960 (Hartford: Connecticut State Department of Health, Office of Mental Retardation, 1966).

[2]W. R. Baller and D. C. Charles, Mid-Life Attainment of the Mentally Retarded: A Longitudinal Study (Lincoln, Nebr.: The University of Nebraska, 1966).

Follow-up Studies of Institutionalized Populations

The institutional follow-up studies were significant as the means of predicting successful social and vocational adaptation by the adult retarded. The first significant institutional follow-up was undertaken by Fernald of 646 patients discharged from Waverly School over the period of twenty-five years from 1890 to 1914.[1] It involved a study of the characteristics of both males and females who made successful adjustments in comparison with those who did not. The chief difference that Fernald identified between those who succeeded and those who failed to make a satisfactory adjustment was in the amount of support and supervision provided by family and friends.

At about the time of Fernald's report, a study was made at Sonoma State Home in California by Ordahl on the efficiency of forty-eight women from the institution working in a canning factory with normal female workers.[2] This was one of the first studies comparing retarded with normal

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[1]W. E. Fernald. After-care Study of the Patients Discharged from Waverly for a Period of Twenty-five Years. Ungraded, V (June, 1919), 25-31.

[2]George Ordahl, "Industrial Efficiency of the Moron," Training School Bulletin, XV (October, 1919), 145-53.

populations. Ordahl reported that a large proportion of the institutional workers had a work output and piece work wages comparable to the normal workers, although there was a tendency for earning rate to follow I.Q. level.

A series of studies of discharges from Letchworth Village in New York began with a report by Storrs which included mildly, moderately, and severely retarded cases.[1] The most striking finding was that on all levels the proportion of success to failures was approximately the same, in a ratio of about three to one. Storrs used a multiple criterion of success combining occupation, marital record, and reports of community behavior from police and social agencies. His study was informative in showing not only a high incidence of success but that this was not confined to the level of the mildly retarded.

Another early study of patients discharged from Rome State School over a twenty-year period, 1904 to 1924, was published by Foley.[2] Like Storrs, Foley employed a variety

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[1]H. C. Storrs, "A Report on an Investigation Made of Cases Discharged from Letchworth Village," Journal of Psycho-Asthenia, XXXIV (September, 1924), 220-32.

[2]R. W. Foley, "A Study of Patients Discharged from the Rome State School for Twenty Year Period," Journal of Psycho-Asthenia, XXXIV (May, 1929), 180-207.

of vocational, marital and conduct indices of success and found quite a favorable record among the 636 patients followed-up. Foley found that more than 87 percent of both males and females lived in homes of average and above quality. This suggested both that a good home served as a criterion for discharge and that familial support contributed to success, confirming Fernald's finding.

The social and economic adjustment of 133 discharged parolees from Laconia State School was recorded by Little and Johnson, who reported more than 80 percent of both males and females successful on the criteria that had been used by Storrs and by Foley.[1] However, Johnson published a later report on an expanded sample of 275 subjects from the same population showing that 46 percent and 67 percent of females and males respectively made fully successful adjustments; 17 percent and 24 percent failed completely, and the balance of 37 percent and 9 percent made marginal adjustments enabling them to survive in the community.[2]

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[1]A. N. Little and B. S. Johnson, "A Study of the Social and Economic Adjustment of 133 Discharged Patients from Laconia State School," Proceedings of The American Study of Feeblemindedness, 1932, 233-251.

[2]B. S. Johnson, "A Study of Cases Discharged from the Laconia State School from July 1, 1924 to July 1, 1934," American Journal of Mental Deficiency, L (February, 1946), 437-45.

Hegge studied the occupational status of 177 high-grade parolees from Wayne County during the war years.[1] Results showed that 88 percent were employed, 57 percent at jobs above unskilled labor, and two-thirds of the employed were in war industries; no relationship appeared between I.Q. and income.

Lee, Hegge and Voelker made a comparison of adjustment characteristics of mildly retarded Wayne County parolees, with a corresponding sample from community special education classes and a control group of normals.[2] Results showed little difference between the retarded groups but both had more uncorrected physical defects, poorer social and occupational adjustments and higher rates of illegitimate pregnancies than the normals. Typically, the retarded were identified late -- 50 percent beyond C.A. 10 -- when learning and behavior patterns were already well established.

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[1]T. G. Hegge, "The Occupational Status of Higher-grade Mental Defectives in the Present Emergency: A Study of Parolees from Wayne County Training School at Northville, Michigan," American Journal of Mental Deficiency, XLIV (June, 1944), 86-98.

[2]J. L. Lee, T. G. Hegge and P. H. Voelker. A Study of Social Adequacy and Social Failure of Mentally Retarded Youth in Wayne County (Detroit: Wayne State University, 1959).

A follow-up after a ten-year interval of patients discharged from Newark State School was made by Wolfson.[1] He found that whereas most of the subjects came from poor unstable families, those who made the best adjustment had been in foster homes and orphanages before admission to Newark. No relationships were found between age of admission or length of institutional residence and adjustment, between I.Q. and adjustment, or between reasons for admission and adjustment. Those who were discharged under a planned program tended to have better success records.

Hiatt, reporting on community placements from Columbus State School, found that emotional stability was more important than intellectual level in determining community adjustment.[2] Astrachen, studying the effects of group psycho-therapy on the success of adjustment following release, found the type of emotional disturbance to be predictive; repressive, passive subjects and those with mild paranoid tendencies showed greatest improvements while

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[1]N. Wolfson, Follow-up Study of Ninety-two Males and 121 Female Patients Who Were Discharged from Newark State School in 1946. American Journal of Mental Deficiency, LXI (October, 1956), 224-38.

[2]M. S. Hiatt, "Casework Services in Community Placement of Defective," American Journal of Mental Deficiency, LVI (March, 1951), 204.

schizophrenics, aggressives, and those tending to act out conflict showed least improvement.[1]

In a study of patients discharged from St. Louis Training School, Harold found that emotional stability and job assignments that imposed realistic demands were more significant than I.Q. in successful employment, and that the patients were better prepared for institutional and domestic employment than for industrial jobs.[2]

Reynolds and Stenkard found that 55 percent of 409 former patients at Owatonna State School had made an acceptable community adjustment seven years after discharge.[3] Factors found to be predictive of long-range adjustment included I.Q., age at time of institutionalization, and extent of physical handicap. Factors which did not discriminate the successful from the unsuccessful

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[1]Myrtle Astrachen, "Group Psychotherapy with Mentally Retarded Female Adolescents and Adults," American Journal of Mental Deficiency, LX (October, 1955), 152-6.

[2]E. C. Harold, "Employment of Patients Discharged from St. Louis State Training Schod," American Journal of Mental Deficiency, LX (June, 1955), 397-402.

[3]M. C. Reynolds and C. L. Stenkard, A Comparative Study of Day Class vs. Institutionalized Educable Retardates (Minneapolis: College of Education, University of Minnesota Press, 1960).

were sex, stability of early home, type of retardation and history of delinquency.

Windle, Stewart, and Brown investigated the causes of failure in three groups of patients on leave.[1] Failures on vocational leave resulted most frequently from inadequate work performance, inadequate interpersonal relations or voluntary departure.

In Great Britain, the main emphasis of follow-up studies of institutional population was on the employment potential of the mildly retarded (educationally subnormal). O'Connor reported that high grade defectives on work assignments outside the hospital were as successful as regular unskilled laborers after initial difficulties were overcome.[2] Job success was related to conditions of supervision, incentive, home conditions and stability. Failures were behavior problems.

Badham found high rates of successful employment related to skilled selection and work placement, good working

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[1]C. D. Windle, E. Stewart and S. J. Brown. "Reasons for Community Failure of Released Patients," American Journal of Mental Deficiency, LXVI (April, 1961), 213-17.

[2]N. O'Connor, "The Occupational Success of Feebleminded Adolescents," Occupational Psychology, XXVII (May, 1953), 157-63.

environment, suitable place of residence and skilled supervision.[1]

Some studies have reported on the adaptation of institutional cases of moderate or imbecile level. (The previous studies cited mainly referred to populations characteristically in the range of mild retardation.) Fitzpatrick found that imbeciles employed in outside industry could do productive work of a simple nature in factories where special arrangements were made for their supervision.[2]

Clark reported research showing that while the initial ability for industrial tasks was low for imbeciles, the initial level was not related to level achieved with training, and the main difference between imbeciles and normals in simple task performance was not in the end-level but in the time required to achieve it.[3]

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[1]J. N. Badham, "The Outside Employment of Hospitalized Mentally Defective Patients as a Step Towards Resocialization," American Journal of Mental Deficiency, LIX (February, 1955), 666-680.

[2]F. K. Fitzpatrick, "The Imbecile in Industry," Journal of Midland Mental Deficiency Society, IX (April, 1959), 35-9.

[3]A. D. B. Clark and A. M. Clarke, "The Abilities and Trainability of Imbeciles," in A. M. Clarke and A. D. B. Clark, Mental Deficiency - The Changing Outlook (Glencoe, Ill.: The Free Press, 1959), pp. 309-333.

As a culmination of institutional follow-up studies, Windle attempted to provide a definite statement on the prognostic characteristics of mental subnormals.[1] He concluded, as have others, that "the methodological flaws of individual studies have frequently been so serious as to make findings of very limited reliability and conclusions of highly restricted generalizations.[2]

One of the limitations of predictive research based on institutional populations was the hign degree of selectivity of these populations. Zigler's and Williams' research indicated that institutionalization itself constituted a significant variable in determining behavior to the extent that generalization across institutional and non-institutional populations was highly tenuous at best.[3] In addition, there was a high degree of selectivity in the composition of institutional populations from the general population of the retarded. This selectivity tended to vary from one institution to another and within an institution over time.

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[1]C. D. Windle, "Prognosis of Mental Subnormals," Monograph Supplement to American Journal of Mental Deficiencies, LXV (July, 1962), 1-180.

[2]Ibid., p. 122.

[3]E. Zigler and J. Williams, "Institutionalization and the Effectiveness of Social Reinforcement: A Three-year Follow-up Study," Journal of Abnormal Social Psychology, LXVI (October, 1963), 197-205.

Community and Special Education
Follow-up Studies

The review of the literature of such follow-up studies was limited to those retardates who as children had been identified in community based programs as mentally retraded, in contrast to those who had experienced institutional residence. As with institutional studies of this kind, the earliest literature was purely descriptive of the frequency with which identified subnormals found employment or made satisfactory adult adjustments. Early studies universally reported that a high proportion of the graduates of special classes found employment. Most of them found that the retarded occupied a wide range of jobs mostly at the unskilled level, and that employment tended to be unstable. They uniformly saw the necessity of supervision. It was also evident from these early reports that pupils in special classes tended to come predominantly from poor and unstable families and that delinquency rates were high. These studies were submitted by such reporters as: Neterer[1],

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[1]Inez Neterer, "Follow-up Study of Special Class Pupils," Ungraded, V (September, 1920), 116-118, 150-54.

Carpenter[1], Bigelow[2], Woolley and Hornell[3], Winifred[4], and Thomas[5].

Wallin in an interesting study, related teachers' predictive estimates of adult competency in self-care and earning a living with actual outcomes.[6] He found that teachers tended to overestimate the potential ability of the lower grade children and to underestimate the potential ability of those in higher grades. He also concluded that

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[1]M. S. Carpenter, "A Study of the Occupations of 207 Subnormal Girls After Leaving School," Special Studies, II (Ann Arbor, Mich.: University of Michigan Department of Vocational Education, 1921).

[2]Elizabeth Bigelow, "Experiment to Determine the Possibilities of Subnormal Girls in Factory Work," Mental Health, V (May, 1921), 309-20.

[3]Helen T. Woolley and Hart Hornell, "Feebleminded Ex-school Children: A Study of Children Who Have Been Students in Cincinnati Special Schools," Studies from the Helen S. Trounstein Foundation, I (1921), No. 7.

[4]C. Amelia Winifred, "A Follow-up Survey of Children in the Developmental Schools of Los Angeles," Los Angeles City Schools, Educational Research Bulletin, VI, No. 2 (1926), 2-10.

[5]H. P. Thomas, "The Employment History of Auxiliary Pupils Between Sixteen and Twenty-one Years of Age," Journal of Psycho-Asthenia, XXXIII (September, 1928), 132-48.

[6]J. E. W. Wallin, "A Study of Industrial Records of Children Assigned to Public School Classes for Mental Defectives and Legislation in the Interests of Defectives," Journal of Abnormal and Social Psychology, LI (January, 1922), 238-46.

intelligence tests alone were not predictive of industrial capability.

Greene found a high rate of failure associated with poor family conditions and lack of adequate training and supervisory facilities.[1]

In the 1930's, reports became more sophisticated in the use of larger samples and in providing more diversified information over longer periods of time. From their study of employment successes of graduates of special education, Keys and Nathan concluded that vocational training should be general rather than specific.[2]

Interestingly, this conclusion of a comparatively early study was presented later by Fraenkel:

> From Syracuse University and other training centers comes the viewpoint that what is needed is an adjustable worker, not a specifically trained worker. They cite numerous examples of the need for a flexible person on the job and in their educational recommendations for the mentally retarded stress the need for habit training and adjustment. By and large, the job placements which have been accomplished

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[1]Elizabeth Greene, "Histories of Seventy-nine Feebleminded Girls Under Supervision in the Community," Mental Hygiene, VII (June, 1923), 785-95.

[2]N. Keys and J. Nathan, "Occupations for the Mentally Handicapped," Journal of Applied Psychology, XVI (May, 1932), 497-511.

> through training programs have been on jobs for which no specific training has been given. General training may be more meaningful in terms of placing the mentally retarded on jobs.[1]

Abel found that steady work for one year was predictive of continued success.[2] Specific factors in success or failure included ability to adjust to new situations, supervisors, personality, interest in work, home conditions and parental attitudes.

Coakley found that in a group of thirty-seven feebleminded adults working in war industries (World War II), all held their jobs for the duration of the war; there was no relationships between I.Q. and wages, and that personal traits and characteristics were the main determinants of success.[3]

Hunt, Wittson and Hunt compared two groups of subnormals, one of low intelligence only, the other of low

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[1]W. A. Fraenkel, The Mentally Retarded and Their Vocational Rehabilitation: A Resource Handbook (New York: National Association for Retarded Children, Inc., 1961).

[2]T. M. Abel, "A Study of a Group of Subnormal Girls Successfully Adjusted in Industry and the Community," American Journal of Mental Deficiency, XLV (February, 1940), 66-72.

[3]Frances Coakley, "Study of Feebleminded Wards Employed in War Industries," American Journal of Mental Deficiency, L (June, 1945), 301-6.

intelligence plus psychiatric symptomatology, with normals through a period of military service.[1] Both subnormal groups had higher discharge rates for neuropsychiatric, medical and bad conduct reasons than normals, but the group with added psychiatric symptoms had a higher discharge rate than the group with only low intelligence.

In general, the studies of wartime adaptive behavior indicated that the mentally retarded of high grade quality could function with a high probability of success under conditions of structured routine, which the armed forces could provide, and in appropriate jobs in industry. The manpower demands of wartime appeared to have provided opportune demonstration of the employability of the retarded under these conditions.

After World War II, the great increase in special education and vocational training programs for the retarded resulted in an increase of studies relating to outcomes. Generally, these studies indicated that success in employment was reported to be related to personal

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[1]W. A. Hunt, C. L. Wittson, and E. B. Hunt, "Service Ability of Military Personnel of Low Intelligence," Journal of Clinical Psychology, X (September, 1954), 286-7.

appearance, social acceptability and work efficiency. Such studies were made by Peckham[1]; Cassidy and Phelps[2]; and Phelps[3].

Increasing evidence that policies of case closure appropriate to the physically handicapped did not apply equally well to the mentally retarded have led to a modification of the Federal Vocational Rehabilitation Act to include more extensive follow-up and continuing services to families, and to a de-emphasis on "closure." Insofar as prediction is concerned, the significance of this lay in the fact that the criterion of adjustment could not be identified with a particular terminal point in time, but involved a continuing and variable process of social adaptation. This, too, held significance for the psychological assessor who should have made recommendations in

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[1]R. Peckham, "Problems in Job Adjustment of the Mentally Retarded," Journal of Mental Deficiency, LVI (October, 1951), 448-453.

[2]V. M. Cassidy and H. P. Phelps, Postschool Adjustment of Slow Learning Children: A Study of Persons Previously Enrolled in Special Classes (Columbus, Ohio: Bureau of Special and Adult Education, The Ohio State University, 1955).

[3]H. R. Phelps, "Post-school Adjustment of Mentally Retarded Children in Selected Ohio Cities," Exceptional Child, XXIII (June, 1956), 58-62, 91.

relation to potentialities. Recommendations based on resulting test scores, tended to reject and not to accept the mentally retarded. Appel and his associates at the New York Work Training Center found that ability to hold a job for six months was a better criterion of success than ability to get a job initially.[1]

In summary of the reports relating to follow-up studies of the community trained retarded, they indicated broadly that a high proportion of the retarded made effective vocational and social adjustments, and there was little to provide a basis for early prediction of who was to succeed and who was to fail. Also, the population of mildly retarded children tended to come chiefly from substandard social and cultural backgrounds and might have represented intellectual deficits of cultural rather than of constitutional origin. It should also be noted that little attention had been paid to the outcomes for moderately and severely retarded persons. Any feeling of optimism concerning the prognosis for this group has been of very recent origin and has only now begun to appear in

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[1]M. J. Appel, C. M. Williams and K. H. Fishel, "Factors in the Job-holding Ability of the Mentally Retarded," Vocational Guidance Institute, XIII (May, 1965), 127-30.

the literature. Saenger, in his follow-up study of moderately retarded persons, has demonstrated that the typical adult with moderate level of retardation has capabilities of adjustment to adult life considerably in excess of general expectation.[1] Saenger has not suggested that they could become socially independent, but he did suggest that their dependency was not total and, with supports, could be significantly reduced.

Studies of Assessment Procedures with the Mentally Retarded

As previously stated, the literature contained numerous important studies relating to the assessment of the mentally retarded. They dealt mainly with the individual tests, batteries of tests, and other techniques employed in measuring the various aspects of functioning for the purpose of predicting success or failure in vocational and/or social adaptation. There have been no studies which have presented "in depth" clinical interpretations of the psychologists' evaluative contact with

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[1]G. Saenger, "The Adjustment of Severely Retarded Adults in the Community. A Report," A Report to the New York State Interdepartmental Health Resources Board, Albany, New York, 1957.

the person, utilizing such insights gleaned from both the testing and person-to-person segments of the session in producing a prognosis and recommendation. Also, in the main the research related to the young-retardates.

Kaufman's administration of two diagnostic instruments-- the Wechsler Adult Intelligence Scale (WAIS) and the Wide Range Achievement Test's (WRAT) reading and arithmetic sections-- to seventy-one mental retardates and a cross-validation group of thirty-one mental retardates showed that the WAIS comprehension subtest was the variable discriminating best between employed and unemployed retardates.[1] Although the arithmetic test was not significant in the discriminant analysis, arithmetic functioning appeared to be an important factor in preparing retardates for employment. All subjects ranged in age from seventeen to twenty-one years, and had obtained full scale WAIS I.Q.'s between forty-two and eighty-four. If the comprehension subtest is a commonsense judgmental measure, then didactic programs are needed to prepare mental retardates for successful employment.

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[1]H. I. Kaufman, "Diagnostic Indices of Employment With the Mentally Retarded," American Journal of Mental Deficiency, LXXIV, No. 6 (1970), 777-9.

In his article, Patterson discussed the increasing attention and concerns directed toward the vocational rehabilitation of the mentally retarded which have led to a study of methods of evaluating their vocational potential.[1] In addition to the use of standardized tests of aptitudes, the work sample and work evaluation methods have been applied in a number of studies. The general attitude has been that standardized tests are inadequate, and that the work sample approach is a better method of assessing aptitudes. It was questioned whether the brief work sample was useful. Ratings based on prolonged observation in a work setting appeared to hold promise for the evaluation of personal-social factors in work adjustment.

Blackman and Siperstein recognized the need for new approaches to appropriate indices of the vocational potential of the mentally retarded.[2] Many negative factors

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[1]C. H. Patterson, "Methods of Assessing the Vocational Adjustment Potential of the Mentally Handicapped," Training School Bulletin, LXI, No. 3 (1964), 129-52.

[2]L. S. Blackman and G. N. Siperstein, "Job Analysis and the Vocational Evaluation of the Mentally Retarded," Rehabilitation Literature, XXIX, No. 4 (1968), 103-105.

were involved in the use of standardized tests and such tests have been found to be inadequate for retarded groups. The use of factor analysis for identification purposes of common skills used in a variety of simulated industrial tasks were fairly good but tended to underestimate unique skills. The ability to predict the work potential of mentally retarded individuals would be greatly enhanced by a clear and precise understanding of skills in relation to task and in the development of relevant methods of assessing these skills. This approach could modify the present practice of vocational training and placement decisions for the mentally retarded made on the basis of I.Q. level only. This new approach could allow mentally retarded individuals to obtain employment at a higher skill level. Recent studies tended to confirm the new approach techniques.

Seidenfeld stated that there was no method to assess reliably the potential for independence, self-support, and social adaptability in the mentally retarded.[1]

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[1]M. A. Seidenfeld, "Human Potential, Society and Mental Retardation as Related to Vocational Rehabilitation," In: B. W. Richards (ed.) Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency, held September 12-20, 1968 at Montpellier, France. (Surrey, England: Michael Jackson Publishing), pp. 38-45.

The use of operant conditioning procedures with institutionalized mental retardates and the correlation of a general ability factor with job success were new approaches to these problems. Inadequate and poorly designed research and lack of consistent effort to develop a well planned program of research and training contributed to difficulties in effecting the use of a maximum potential of mental retardates.

Johnson found that the ability level of the mentally retarded, as measured by the intelligence quotient (I.Q.) or social quotient (S.Q.), was predictive of a variety of adaptive behaviors, and that the I.Q. was approximately the same as the S.Q. in predictive values.[1] Subjects were 23,211 individuals in nineteen institutions for the mentally retarded. A census of each subject contained the latest I.Q. or S.Q., the type of test, ratings of capacity for self-help, and frequency of antisocial behavior. The I.Q. tests were the Stanford Binet (7,619 subjects) or a Wechsler (5,919 subjects). S.Q. tests

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[1]R. C. Johnson, "Prediction of Independent Functioning and of Problem Behavior from Measures of I.Q. and S.Q.," American Journal of Mental Deficiency, LXXIV, No. 5 (1970), 591-3.

(6,599 subjects) were nearly always the Vineland Social Maturity Scale. Analysis of the data indicated that I.Q. or S.Q. scores allow successful prediction, at a level far greater than chance, of certain behavior related to self-help, help of others, independent function, and learning capability. Scores were less predictive of problem behavior and adequacy in social interactions. Combined S.Q. and I.Q. scores have no more predictive value than either one alone.

Mueller reported a study of the utility of Wechsler Adult Intelligence Scale (WAIS) scores in predicting release rate of institutionalized mental defectives.[1] Results were contrary to those generally observed in earlier studies in that the verbal intelligence was observed as being a better predictor for release than the performance intelligence. Mueller also located only one study which was directly related to achievement testing with the mentally retarded during the period 1960-1963. The study was concerned with the evaluation of reading level of adult retardates applying for occupational training and

[1]M. W. Mueller, "Mental Testing in Mental Retardation," Training School Bulletin, LX, No. 4 (1964), 152-65.

placement. On the basis of scores of thirty retardates ranging from forty-seven to eighty-one in intelligence, it was determined that the Gray Oral Reading Paragraphs and the Wide Range Achievement Test (WRAT) correlated .94. This suggested that the two tests measured much of the same thing, and that it was rather pointless to administer both tests as parts of an evaluation battery. On the basis of administration time and the fact that it yielded additional information, the use of the WRAT was suggested.

A study by Taylor was undertaken at the Goodwill Industries Sheltered Workshop in Tacoma, Washington from 1960 to 1963.[1] An evaluation unit had been established there to assess the rehabilitation potential of mentally retarded adults. The procedure of the evaluation consisted of two weeks of testing with a variety of standardized tests and some experimental tests devised by the workshop staff, followed by six weeks of trial work at various job stations within the Goodwill shop. Final evaluation of the client was then based on two months of

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[1]J. B. Taylor, Personality and Ability in the Lower Intellectual Range: A Study of Assessment Methods (Seattle, Wash.: Institute of Social Research, University of Washington, 1964).

testing and observation, at the end of which he was taken on for extended training, rejected for training, or placed immediately in employment. Taylor's intent was to establish the degree of predictive validity of a battery of tests for behavior ratings in occupational activity. It should be noted that the temporal limit of prediction was within the assessment period of two months and applied to untrained work performance. It had originally been planned to include a follow-up rating after one year, but that was not done. No replication, cross-validation or extended temporal analysis was included in the project. Within these limits, the study was carefully done, but the reporting of data left something to be desired. The design was multivariate with respect to both predictor and criterion variables. Taylor selected four tests as constituting the most efficient battery for predicting work efficiency: The Wechsler Adult Intelligence Scale, Digit Symbol Subtest, Bender Gestalt (Pascall-Suttell score), Purdue Pegboard Assembly subtest, and Wrap-and-Pack.

A summation of Taylor's investigation pointed up the relationship between certain standard tests, chiefly performance tests emphasizing perception, and rated

performance of the types of tasks found in a sheltered workshop environment. Predictive validity of these tests applied, however, only to the general task efficiency of the client, not to the psychosocial aspects of adjustment. One of the limitations of the study was that the predictability established was at a level significant for a population, but hardly sufficient for the individual case. The prediction related only from certain test scores to certain observations of behavior within the period of prevocational evaluation. The study did suggest that there could be real economy in the tests employed in initial assessment. A small number given in a limited period of time could be as informative as a large number given over an extended time.

Parnicky and Kahn's study on the predictive assessment of the retarded was somewhat unique in the literature.[1] Where most studies concentrated on establishing a relationship between antecendent predictor variables and some terminal criterion, such as employment, they investigated the

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[1]J. J. Parnicky and H. Kahn, Evaluating and Developing Vocational Potential of Institutionalized Retarded Adolescents (Bordentown, N.J.: E. R. Johnstone Taining and Research Center, 1963).

relative predictive values of antecedent measures for progress from stage to stage of training sequence leading to the terminal stage of employment. Adult adaptation of the retarded was thus seen to be a developmental process in which the interventions of training interacted with the measurable attributes of the retarded person. The major focus of the project was on the evaluation of vocational potential relative to rated performance through the successive phases of training. Three types of evaluations were undertaken: (1) vocational appraisal using work samples and real work situations; (2) psychological appraisal using a battery of motor, personalty-temperment, and intellectual tests; and (3) vocational interest and sophistication assessment, using a preliminary form of reading-free device for measurement of the vocational interests of educable mentally retarded adolescents. On the basis of the measures employed and the population sampled, the predictive power of prevocational assessment diminished through successive stages of training and was virtually zero for final community employment. However, a major weakness of the entire project was that analysis was made on only those subjects who proceeded systematically through all four phases. Poor subjects were generally

eliminated from the program, and the most capable subjects were accelerated into independent employment. This had the effect of cutting off the extremes of the initial distribution of the subject population and of reducing variability in the final sample. It was quite possible the real relationships between prevocational performance and final outcome were obscured by this process of selection. Also, initial scores on unit work sample tasks were found to have relatively low predictive value for later phases. It was possible that this was associated with the observation that retarded persons frequently show initial difficulty in adapting to motoric tasks but that given practice, their efficiency can rise to levels approximating normal performance. Furthermore, among psychological tests, the motoric were both the most stable and the most predictive of ratings in the subsequent stages of training. The measure of intelligence used in this project (Peabody Picture Vocabulary Test) yielded no predictive value, nor were they shown to have the degree of reliability over time that was characteristic of the motor tests.

Although Shulman studied the process of vocational development in educable mentally handicapped adolescents, his findings relating to predictive assessment may have

some useable correlates for the assessment of the older subjects.[1] A few of such findings are:

1. The Wechsler Intelligence Scale for Children (WISC) I.Q. was higher for high-employability than for low-employability groups, primarily reflected in scores on the sub-tests Comprehersion, Similarities, Picture Arrangement and Coding.

2. Analysis of interviews with subjects and parents showed substantial differences between low and high-employability groups. Low-employability subjects tended to come from more advantaged environments than the high-employability subjects. More than half of the high-employability groups were lower class Blacks; most of the low-employable subjects were middle-class Whites.

3. Effects of racial differences between Black and White subjects were impossible to distinguish from the effects of social class because of the complete confounding of these variables. However, the Black subjects were consistently superior to

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[1] L. S. Shulman, The Vocational Development of Mentally Handicapped Adolescents: An Experimental and Longitudinal Study (USOE, BEH, Proj. 5-0981) (East Lansing, Mich.: Educational Publication Services, Michigan State University, 1967).

the White subjects on most measures of the study. Their rated employability was much higher. Shulman related these differences to the differential reactions to mental retardation in the two environments. Mental retardation in a White middle-class family appears to have a doubly debilitating effect.

4. Only the Purdue Pegboard Test (a measure of eye-to-hand coordination and tip-of-the finger dexterity) predicted equally well for both the Black and White groups; seemingly it is a more class-free measure. The investigation of the predictability of "employability" demonstrated clearly that the Purdue Pegboard Test is a highly stable and valid measure for predicting satisfactory workshop performance over a period of two years. Other measures added little to the predictive power of the Purdue Pegboard Test alone, and it seemed to be relatively independent to the effects of social class environment which were observable in all other measures. The finding that the Purdue Pegboard Test was a valid

predictor of light industrial work success was consistent with the findings of other investigators such as Parnicky and Kahn[1] and Dayan.[2] That it is equally predictive of other types of employment is not assured.

Summary and Conclusions

From the review of research studies, it was apparent that efforts had increased to maximize the number of mildly retarded who "disappear" into the normal community and to provide conditions under which the moderately and severely retarded can attain an adult status of partial productivity, social assimilation and independence. Perhaps the most striking outcome of recent programs of rehabilitation of the retarded has been the frequency with which the success of clients has exceeded expectations. This has been true at all levels. Mildly retarded men and women have, with surprising frequency,

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[1]J. J. Parnicky and H. Kahn, Evaluating and Developing Vocational Potential of Institutionalized Retarded Adolescents (Bordentown, N.J.: E. R. Johnstone Training and Research Center, 1963).

[2]M. Dayan, Validation of Vocational Capacity Scale Utilizing Institutional Retardates. Report on Project VRA-RD-1619P (Pineville, La.: Pincrest State School, 1968).

assumed a wide range of semi-skilled and even skilled jobs and have assimilated totally into the normal community. Young men and women of moderate retardation have demonstrated capacities for substantial economic productivity under protected or sheltered conditions and for maintenance of a semi-independent life in community settings to a degree unheard of a generation ago. Even the severely retarded, under carefully controlled conditions of learning and behavioral support, have shown degrees of productive self-sufficiency and social adaptation beyond expectation.

The writer has made two observations covering these advancements. One is that despite the remarkable outcomes, they are by no means uniform, reflecting the effects of differences either in the characteristics of the persons or in the methods and circumstances of treatment. By whatever criteria one applies, there are variations in degrees of success and failure, and it is desirable to be able to predict them. The second observation is that success or failure is not simply inherent in the nature of the individual but is a result of interactions among at least three sets of variables: (1) the properties of

the person, (2) the environmental interventions, and (3) the societal accommodations. That is to say, whether or not an individual succeeded or failed in some particular respect depended on his individual characteristics as modified by whatever treatment or training he had, having functioned in social contexts which accepted, rejected, or accommodated him. Getting a job depended as much on employer attitudes as it did on the aptitudes or training of the client.

The review of the literature made it apparent that specific formulas for predicting adult success in the retarded had not been achieved. To the contrary, if there were any clear conclusions to be drawn from the studies, they were: (1) that no simple formula for prediction was possible, (2) that the relationships between predictors and criteria were enormously complex, and (3) the outcomes in terms of personal, social and vocational success were the product of manifold interactive determinants.

The studies reviewed in this chapter have been mainly of two types: those of a longitudinal or follow-up nature, and those attempting systematic analysis of the relationships of predictor and criterion variables. The

former have been essentially descriptive in nature, but some of them have attempted to distinguish the factors characterizing successful and unsuccessful groups. The latter, with few exceptions, constituted isolated investigations, with little attempt to develop a coherent body of knowledge, to replicate or cross-validate, to expand the basis of generalization from small local population samples to wider populations, to systematize and standardize the measurement of independent and dependent variables, or to fit predictive investigation to coherent developmental theory. Despite these limitations, important contributions have resulted from these studies. The contributions for the most part have been more to the development of theory than to the improvement of practice. However, there are some implications from the research findings which can be useful guides for those who are charged with the practical tasks of assisting the mentally retarded to live more satisfactory and adult lives. That theory and practice do not necessarily go hand in hand may be illustrated by a single example. When an investigator demonstrates a statistically significant correlation between a predictor and a criterion variable,

he may be defining a relationship which is quite stable as a probability in a particular population, but which contributes very little more than chance in the individual case. Such a finding may add appreciably to our knowledge of underlying relationships but does not, in the opinion of this writer, assist a referring counselor in judging the best course of action for an individual client. Similarly, the best judgments of a counselor or psychologist may have little backing from quantified research findings, yet may be wise and effective. The ideal unity of theory and practice have not yet been achieved in our management of the personal and social concerns of men.

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CHAPTER III

THE FORMAT

Pre-Assessment Information

This study was primarily concerned with only one portion of a "global" evaluation of the mentally retarded for vocational rehabilitation or activation, that is, the psychological assessment. However, in preparation for the assessment, the clinician should have an acquaintance with the kinds of information which comprise a thorough diagnostic study of the retarded client or whatever part of it had been accomplished prior to his contact with the client. Those factors which are particularly relevant to the employability of the client have special importance for the clinician, such as:

I. The accuracy of historical information derived from informants must always be assessed. Retarded clients are often limited as self-informants because of poor verbal skills, and

parents may be forgetful regarding past development or may lack objectivity and be unrealistically positive.

A. Information on current work situations: Immediate past work experience of client in work or work-related activities (e.g., reasons for unemployment, recent performance on job, home chores, school tasks, etc.).

B. Past work history: Description of pre-job or on-the-job training, work performed, conditions of work, reasons for termination, rating of task adjustment, social adjustment on the job.

C. Personal-developmental history: Emphasis on development of significant traits broadly relevant to work performance (e.g., independent functioning, enjoyment of doing a good job, interests, leisure time

pursuits, occupations, etc. in developmental history).

D. Medical history: Historical data relevant to present physical status, including current medical reports and evaluations. Note the interfering physical problems which may have implications.

E. Family history and cultural background: Family structure with special emphasis on position and role of the client (e.g., father, age 42, Italian, machinist, attended special class grades 5 to 8, then left school -- describes self as "easy-going," does not see client as having any special problem. Mother, age 41, completed 6 grades -- "I run things here. I never could understand Tony (client)." Statement regarding cultural background, socio-economic level,

neighborhood, etc. Emphasis on those features relevant to client's employability under open or sheltered conditions. Of central importance here is the amount and quality of work stimulation and support given the client by the family.

II. Reports from other professional persons based on the examinations and observations of the client and/or family.

A. Physicians. Family doctor, neurologist, and/or psychiatrist.

B. Social worker. From school, family service or other social agency.

C. Teachers and other school personnel. Grades, comments from records, personal impressions, etc.

D. Clergy.

III. Direct observation of the client by previous evaluators and service personnel such as teachers, counselors, physicians, specialists, etc.

Direct observations of the client obtained through interview or observation of the client in the home, school, or other setting is an essential facet of the total assessment. These observations are important to the clinician, since he usually has only one type of contact with the client. The observations of other professionals from within their settings serve as a comparison with those of the clinician. Important factors derived from these direct observations are:

A. Appearance. Physical characteristics.

B. Social poise. Level of communication (initiates conversation, spontaneity of response, etc.).

C. Affect. Evidences anxiety, hostility, euphoria, general happiness or unhappiness, calmness, etc.

D. Quality of relationship. Ease of establishing rapport. Quality of interpersonal relationships and contacts with peers, parents, authority figures

and strangers. Likes and dislikes in friends, relatives, etc.

The referring agencies should be encouraged to provide the most appropriate kinds of information (as spelled out immediately above) concerning the client at the time of referral to the clinician. With no intention of being derogatory about the referrer, this clinician has found that, in some instances, a referring agent may not provide essential background material with the assumption that he will obtain "objective and unprejudiced" findings from the psychological assessor. It behooves the psychological assessor to make a routine request for the background information.

The Psychological Assessment

The importance of providing a psychological assessment which extends beyond simple reporting of psychometric measurements to include clinical evaluation and insights cannot be overstated. The psychological assessment serves as a predictor of a person's capacity and potential for learning and performing. Because the retarded are unpredictable and variable in their performance, the clinician must study each person under many situations to approximate

an accurate decision as to his ability to do things for himself and his capacity to understand his environment. The main concern of the clinician (psychologist) is the evaluation of many aspects of behavior which make the individual a unique and changing person. These aspects include intellectual capacities, personality characteristics, academic abilities and special skills (aptitudes), and interests.

Test scores by themselves are meaningless, especially in relation to the mentally retarded. The clinical observations, interpretations and insights are the vital factors. The I.Q., for example, while useful within broad limits, is not particularly valid as a single index of vocational success. The clinician uses a wide variety of instruments and methods in exploring the behavioral characteristics of the retarded person. However, the assessment of work potential should emphasize individual diagnosis and avoid grouping into traditional diagnostic categories. The focus of the evaluation should be on the identification of areas of strength, rather than on weaknesses. Basic simple abilities may provide clues to areas that can be developed into work activities. The special

needs of each individual must be identified and related to work potential. (When interest and aptitude testing are used with the retarded, their lack of opportunity for exploratory experiences must be considered).

The individual's potential for developing and engaging in mature and acceptable social behavior must be assessed. Social competence appears to be one of the most important, if not the essential, determinants for the ability to function vocationally.

The underlying philosophy of the assessment is the acceptance of the concept that everyone has his limitations, and it is not what a person has lost that counts, but what he has remaining. The clinician, therefore, should encounter the subject in the most supportive and encouraging manner in order to elicit the maximum effort and capacity from him.

The clinician's assessment of the retarded client should include, if possible, the following areas: (As previously indicated, this may be extended either in full or in part, depending on the subject's capacity.)

I. Intellectual Functioning. (cognitive abilities). This includes estimates of current

intellectual capacity (I.Q.) and functioning and the efficiency with which intellectual resources are used. Estimates should include such intellectual components as:

A. Verbal ability (language, judgment, conceptualization).

B. Numerical ability.

C. Nonverbal ability.

D. Spatial visualization.

E. Memory.

II. Personality and Emotional Status.

A. Affective functioning. This describes the client's interpersonal relationships with peers, parents and authority figures, his role in such relationships (e.g., submissive versus dominant), attitudes towards authority, and group identification.

B. Self-Regard. This is how the client perceives himself, his feeling of adequacy or inferiority, his aspirations

and degrees of insight concerning his limitations.

C. Frustration behavior. This relates to how the client deals with the daily life problems with which he is confronted, his tolerance of frustration, and his ability to mobilize resources in facing problems.

D. Emotional disturbance. This refers to the nature of anxieties and defenses against anxiety, moods and fluctuations of moods, degrees of hostility and aggressiveness or passivity and submissiveness.

E. Motivation. This relates to the nature of his impulses and drives, controls and ability to restore lost control. Ability to accept and fulfill responsibilities.

III. Academic Achievement.

A. Reading level.

B. Arithmetic level.

C. Spelling level and quality of handwriting.

D. Ability to follow written instructions.

E. Ability to follow oral instructions.

IV. Manual Skill and Dexterity Aptitudes.

A. Motor coordination.

B. Finger dexterity.

C. Manual dexterity.

D. Reaction time.

V. Interest. This describes the client's expressed interests or explores avenues of likes and dislikes of which the client may not be aware.

The clinician's selection of a suitable battery of tests from a vast and varied store of tests has been based partly on (1) the universality of test selection for vocational appraisals of select groups of clients; (2) those tests which appeared to have greater reliability and validity based on the major research studies and based on the clinician's experience, and (3) those tests which appeared to have maximum practicality in administration and usability in describing the client's capacity and potential for vocational functioning.

The tests most frequently employed by this clinician, their description and application and the insights of this clinician regarding the client's responses and reactions will now be explored. The insights will serve as a construct for the "guidelines." Generally, this will follow the outline of the Psychological Assessment on pages 77 to 80 of this chapter. In restating the purpose of this treatise, it was to develop a meaningful guideline (signaling) of work-related characteristics of the client which can provide a practical estimate of his vocational potential. It can also serve to highlight the interfering problems. Hard and fast procedures and methods for the assessment process are not possible, nor are they advisable. The assessment program must be determined by the clinician for each individual. The clinician does not pre-determine the tests to be administered. They have to be introduced in a flexible manner and depend upon what the clinician encounters from the manner and content of the client's responses. In some instances a rather extensive and comprehensive battery of tests is appropriate. On the other hand, for some clients, the assigned test batteries are rather minimal in scope and some even need

to be aborted. In such instances, there may or may not be serious implications for the vocational readiness of the client, depending on the reasons for his inability to take or to complete the assessment. Also, the reasons for this may vary and require qualification. It is most important that the referring agent accept the concept of flexibility in relation to the make-up of the psychological assessment. Only in this way can a damaging or even a derogatory picture of the client be avoided. Often the "contract" for an assessment will specify the provision of a specific battery of tests which may not be appropriate for the particular referred client. This is not always feasible with the mentally retarded. The referring agent, however, may more correctly request that certain broad areas of functioning need to be assessed. However, the specific tests which are to be administered should remain within the province of the examining psychologist.

Assessment of Intellectual Capacity and Functioning

Except for the eligibility requirement to receive governmentally sponsored vocational rehabilitation services, at the adult level, the diagnosis of mental

retardation is not as meaningful as it is at the juvenile stage of life. Instead, the assessment of the adult mental retardate's intellectual capacity is seen as an integral part of the "global" evaluation in relation to vocational functioning. The intelligence (I.Q.) is really a composite of the person's many areas of intellectual functioning, for there is more than just one type of intelligence. Stated in another way, there are a number of aspects of cognitive functioning which comprise the person's overall intelligence. The intelligence test employed by this clinician for the purposes of defining the individual's intellectual capacity and describing intellectual functioning (differential) is the Wechsler Adult Intelligence Scale (WAIS). It is an individually administered test which is used universally by psychological assessors. Studies suggest that the Wechsler scales are superior predictors of most aspects of retarded functioning.

The WAIS consists of eleven subtests, each of which measures and is descriptive of some particular facet of intellectual ability and functioning, and in effect each subtest's scaled score (converted from a raw score) is

equated with the range of a person's intellectual capacity. Actually any and every test of intelligence measures something more, often a good deal more, than sheer intellectual ability-- or any aspect of it-- verbal, abstract, numerical, etc. Some of these other capacities and traits are identifiable and include variables which are traits of temperament and personality such as persistence, drive, and energy level. Moreover, the contributions which these factors make to the score of any intelligence test battery is a function of both the characteristics of the test and the circumstances under which it is administered. The writer believes that it is a vain endeavor to attempt to eliminate these factors in the hope of achieving "pure" measures of intellectual ability. As a matter of fact, the effect of such refinement would serve to diminish rather than to increase the validity of the tests as effective measures of general intelligence. The reason for this is that while intellectual capacity may be a unitary trait or ability, general intelligence is not. Intelligence is part of a larger whole, namely, personality itself. The experienced clinician is constantly aware of the unique personal characteristics of the subject he is assessing, and, is therefore,

prepared to describe the validity of the results obtained during the present testing session, as well as to signify his estimate of the subject's potential rather than to present the resulting scores as a "constant."

The eleven subtest scales are divided into two subgroups identified as Verbal and Performance. Most of the verbal tests correlate better with each other than with tests of the performance group, and vice versa. All of the eleven subtests are administered to each subject.

The WAIS subtests, what they measure clinically, and some of the special clinical insights which may have vocational implications are as follows:

Information

This subtest measures:

a. Urge to collect knowledge

b. General fund of accumulated information

c. Alertness to everyday world.

This writer has found some variance in the Information subtest scores of the mentally retarded that he examined, in that those individuals who had experienced support and coaching from parents, relatives, and others and had special class placement during their school years

were more informed that those who did not have such exposure.

Some psychologists have objected that the range of information is a biased measure of intelligence, because it necessarily depends to a large degree upon educational and cultural opportunities. Nevertheless, the essential question answered in this subtest is the amount of so-called general information that the individual has absorbed from his environment rather than the way that he utilizes this knowledge. Memory, remote rather than immediate, is perhaps a basic requirement for what is being examined. The outcome of the testee's endeavor with this subject is dependent upon, and is interrelated with, such factors as intellectual curiosity and motivation, as well as with reading habits and auditory comprehension. The writer, too, has seen that the Information subtest is consistently associated with the specific factor of verbal comprehension and that there is a significant relationship between verbal comprehension and the mentally retarded clients.

The degree of effectiveness that the mentally retarded demonstrate with Information may be vocationally significant, for it is the writer's opinion that it

reflects effective behavior in the vocational setting. It provides some additional estimate, although certainly not conclusive, of the individual's ability to get along in everyday activities, an aspect similar to what is known as the activities of daily living, in the case of the physically handicapped. Alertness to the everyday world and its readily overlooked basic information demands bear a relationship to some of the content seen in the Information subtest. Variable and significant characteristics of the testee are also encountered in the course of the administration of this subtest as with all the other subtests, such as:

1. Vague pondering, without any declaration of ignorance.
2. Guessing immediately.
3. Complete inappropriateness (unrelatedness) of the answer.
4. Physical mannerisms (hitting forehead, stammering, fidgety, leaning over table, motorally self-distracting, etc.).
5. Sensitivity to ignorance - self deprecation, unaffected by or unaware of ignorance (this

is more likely, if not look for emotional component).

6. Attempt to transfer into another activity.

7. Feigning fatigue - yawning, grimacing, etc.

The items found in the subtest usually seem to be emotionally neutral and nonthreatening to the mentally retarded. The subtest also serves as a good introduction to the total task. Individuals who have been subjected to special education may succeed here beyond expectation due to coaching, overlearning, or sheer memory without real understanding. This should be carefully weighed by the clinician. On the other hand, this clinician has found comparatively low scores on this subtest for the intellectually limited person.

This clinician has found that most of the mentally retarded tested fail either items 5 or 6. Test instructions are that the examiner start with item 5 for all subjects and, if both are failed, the examiner should return to item 1. This becomes immediately discouraging to the client, and it would make more sense to begin with item 1 if mental retardation is suspected. This clinician has questioned the validity of mental retardation diagnosis if the examinee is successful beyond items 8 and 9.

Guidelines for the Information Subtest (WAIS)

Findings	Clinical Interpretations
1. Very little or no interest scatter in a limited number of items completed.	Evidences low intellectual capacity.
2. Ceiling reached at approximately item 15. Intratest scatter noted.	"Functional" retardation (impeded by adjunct problems). Overleaning, overcoaching.
3. Subtest score is lower than most of the other subtest scores.	Suggests mental retardation. Limited exposure to the social and educational process. Lack of curiosity and motivation.
4. Prolonged reaction time to each item. Pondering followed by incorrect response.	Inability for receptive and/or expressive language. Unassuredness. Seeks direction.

Guidelines for the Information Subtest (WAIS)

Findings	Clinical Interpretations
5. Immediate responses containing "wild" or random guesses.	Hyperactive impulsive disorganized thinking. (Look for additional emotional and/or organic signs).
6. Subject frequently inquires about his performance.	Feelings of inadequacy. Poor self-concept. Easily discouraged.

Comprehension

This subtest measures:

a. Common sense -- ability to evaluate past experience

b. Judgment in practical (social) situations.

This subtest is less dependent on formal education than the Information subtest; however, it requires the ability to verbalize accurately. The clinician must be aware of deficits in the examinee's language usage and expression as interfering factors in receiving acceptable responses to the test items contained in this subtest. The subtest is particularly vulnerable to the current emotional status of the testee and, in numerous instances, can suggest clues that highlight specific emotional problems. At times, bizarre or antisocial impulses may be clearly revealed. The mentally retarded subjects are prone to disclose such characteristics as unassuredness, passivity, and dependence. For example, in item 1, "Why do we wash clothes?" the subject will respond, "Mother says so," or "The thing to do," and the like. Such passively inclined subjects are frequently hesitant in

having the examiner to repeat a question that he may have forgotten in part. The clinician should repeat the question if he feels that such is the case. The more assertive client will ask for a repetition. In either case this is a significant clinical insight if such a reaction becomes an operative pattern of the client.

Many of the more retarded clients will respond to item 2, "What is the thing to do if you find an envelope in the street that is sealed and addressed and has a new stamp?" with "Give it to the policeman," "Give it back to the person," or "It doesn't belong to you." Also, repetition is frequently required because of the length of the question. The passive client will also seemingly ponder over each question. The more assertive or impulsive subject will frequently ask, "What is that?" "Say it again," "I don't know." (immediate response), etc. Such a client may also express a statement which may be completely oblivious to the actual question (insensitive guesswork). Inability to handle item 2 may suggest an inability for self-direction, either intellectually and/or emotionally.

The mentally retarded will frequently respond to item 4, "Why should we keep away from bad company?" with

"They're bad," "No good," "Get into trouble," etc. Lack of integration and fragmentation of thinking are evidenced. Also, the mentally retarded may not comprehend the concept or expression, "bad company."

In item 7, "Strike while the iron is hot," the mentally retarded may respond with, "Iron clothes now," "Has to be hot first," etc.

The clinician has found that very few retardates will have any effectiveness beyond item 6. Occasionally a client with boy scout experience may respond correctly to item 9, "If you were lost in the forest in the daytime, how would you go about finding your way out?" with "Use the compass" (unexplained); "The sun will show you" (unexplained).

The Comprehension subtest is a good measure of those aspects of general intelligence that probe into the individual's ability to verbalize the reasons for common practice and customs in his culture. Presumably this skill is correlated with actual behavior.

The diagnosis of mental retardation is highly suspect if the subject obtains partial or full credit for any seven items. In the clinician's opinion, the higher the

score achieved by the mentally retarded, the higher the potential is for social and vocational competition, since the test measures the ability to respond to everyday (practical) problems. Of course the clinician must weigh any such hindering factors as communicative dysfunction or impairment and emotionality in relation to estimating the intellectual quality for this subtest. In the opinion of this clinician, the quality and manner of the subject's responses to this subtest bear a relationship to the degree of his accommodation to a practical working situation and, perhaps, to social settings.

In administering the subtest, inquiry should also be made routinely of those responses that seem to be stereotyped or overlearned in order to guage the degree of actual comprehension. The mentally retarded will occasionally respond promptly with a seemingly correct word or phrase and yet lack the definition of their answer or comprehend its implication. On the other hand, testing the limits can be of value, since it allows the examiner to be sure that the subject's failure to understand the specific working of a question is not masking greater potential.

Guidelines for the Comprehension Subtest (WAIS)

Findings	Clinical Interpretations
1. Subject's effectiveness does not reach beyond item 6. Ceiling of achievement quickly reached.	Limited or retarded intelligence. Limited social experiences. Limited verbal comprehension.
2. Poor language usage and expression.	Inability to profit from educational efforts. Deficits in communication (organic). Limited exposure to cultural offerings and experiences.
3. Hushed, almost inaudible voice.	Unassuredness. Sensitivity to ignorance and failure. Passivity, introversion, dependence.
4. Necessity to repeat test items.	Poor receptive language. Limited auditory attention.

Guidelines for the Comprehension Subtest (WAIS)

Findings	Clinical Interpretations
4. (continued)	Emotional blocking. Poor memory.
5. Ability to obtain full or partial credit for any of seven items.	Diagnosis of mental retardation is suspect.
6. Lack of spontaneity and expansiveness in responding. Syntax is lacking.	Unable to associate with personal experiences. Slow thinking. Limited intelligence.

Arithmetic

This subtest measures:

a. Numerical reasoning and speed of numerical manipulation

b. Ability to conceptualize verbally and express numerical concepts

c. Concentration and attention

d. Capacity for sustained effort.

Computational problems have been used in one form or another in most intelligence scales. Even before the advent of psychological assessment, the ability to manipulate numbers in solving problems was considered a rough and ready measure of intellectual functioning. Number manipulation is very much a part of and a necessity for every person's daily living routine.

The subtest items are accomplished without the use of pencil and paper. It consists of fourteen timed items, and it is the only subtest in the Verbal Scale with time limits.

For the average examinee, the subtest frequently generates a variable degree of anxiety, since there is a time factor in addition to the demand for a specific,

non-elaborative response. In the experience of this examiner, most mental retardates do not appear to be overly concerned about the time factor. They are prone to either remaining unresponsive to the problem presented or to supplying an obvious guess. (This depends on the personality of the client, which suggests a significant insight into his mode of functioning).

This clinician is of the opinion too, that this subtest for the mentally retarded is a good indicator of general intelligence and also of verbal comprehension (receptive language). It also has some discriminative value in that it may differentiate those retardares who are additionally impeded by organic impairments which disallow verbal conceptualization, attention and concentration. Frequently, such subjects will become more restive during the administration of the subtest and/or will continue to supply a number of wild guesses to each test item.

The Arithmetic subtest is the most school-oriented subject in the WAIS and, again, those subjects who had been in special education or modified class program have been found by this clinician to fare somewhat better than those who did not have such an experience. Also, those

subjects who had some work background, whether it was in association with their educational program or in an actual job, seemed to do better with the subtest. This may have been related to the degree of independence these subjects have been allowed, such as: traveling alone by public transportation, shopping at the food store, adhering to a daily time schedule, routine arithmetical problems encountered on any job, and the like. Therefore, for the mentally retarded, the degree of facility with the Arithmetic subtest may bear a relationship to their readiness or ability to cope with the requirements of a working situation. Since attention and concentration are involved in success, the way in which a subject applies himself to a challenging task can be observed clinically.

If the clinician is of the opinion that the subject is markedly deficient in the conceptualization of a problem, or if the subject is especially anxious, it may be less threatening if he started with item 1 in this subtest instead of with item 3. In this way, the subject may be more apt to deal with the ensuing problems, if the inherent ability was present.

Guidelines for the Arithmetic Subtest (WAIS)

Findings	Clinical Interpretations
1. Ceiling reached within a limited number of items and with negligible or no scatter.	Limited intellectual capacity. Inability to coneptualize verbally and express numerical concepts.
2. Necessity for repetition of questions.	Limited concentration and attention. Attempts to obtain more time or to delay exposure of ignormance. Poor verbal comprehension.
3. Gives up immediately or provides an obvious guess.	Impulsive. Little capacity for sustained effort (does not persist). Emotional blocking.
4. Unresponsiveness.	Inability to provide an answer. Sensitivity to ignorance.

Guidelines for the Arithmetic Subtest (WAIS)

Findings	Clinical Interpretations
4. (continued)	Sensitivity to criticism.
5. Contaminates examiner's efforts, i.e., changing subject, fidgeting to another position, dropping an object, coughing, feigning fatigue, etc. The need to use the toilet or have a drink is more usual during this subtest.	Avoidance of exposure. Immaturity. Difficulty in adhering to direction. Self distracting. Lack of independent functioning.

Similarities

This subtest measures:

a. Verbal concept formation (association)

b. Concrete, rigid, abstract, and flexible thinking or concrete versus flexible thinking.

The tasks which are associated with the Similarities subtest appear to represent a specific application of one's ability to generalize, abstract, and find relationships that are not obvious at first. Comprehension, memory and capacity for associative thinking are necessary to provide suitable responses to the thirteen paired items. The separation of essential from nonessential features enables qualities or levels of intellectual functioning to be distinguished.

This writer has found that the degree of success that the mentally retarded experience with this subtest seems to correlate with their verbal comprehension. Sprague and Quay did a factor analysis study and found that the Similarities subtest measured principally verbal comprehension.[1]

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[1] R. L. Sprague and H. C. Quay, "A Factor Analytic Study of the Responses of Mental Retardates on the WAIS," American Journal of Mental Deficiency. LXX (September, 1966), 595-600.

Compared to the Comprehension subtest, in which emphasis is placed on social variables, this subtest requires the subject to find solutions with no immediate everyday application. The clinician has found that the mentally retarded are very ineffective with the demands of this subtest. Also, as a whole, they are even unable to offer guesses, since the concepts required are beyond their capacity. Most of the retardates, if not all, of those whom this clinician has examined, seldom obtain the full 2 point value scored for any item (possible scores are 0, 1, or 2 points. The more abstract comparisons receive a 2 point score, while a more functional concrete answer receives a score of 1). They seldom achieve at all beyond item 4 or 5. The diagnosis of mental retardation has been questioned if this subtest score is equated with above the "borderline" retarded range of functioning. Intratest scatter with achievement in some degree beyond item 8 or 9 also makes such a diagnosis questionable, especially if the Arithmetic and Block Design (described later) subtests are higher too. The mentally retarded have also been found to provide in their responses "differences" rather than "similarities." They are also prone

to respond, "They're not the same." This can be considered as a further corroboration of the diagnosis of mental retardation.

Guidelines for the Similarities Subtest (WAIS)

Findings	Clinical Interpretations
1. Ceiling reached within a limited number of items and with negligible or no scatter.	Limited intellectual capacity. Poor verbal concept formation. Lack of abstractive thinking.
2. Admits ignorance immediately, or repeatedly states: "Not the same." Provides singular definitions.	Concrete or rigid in thinking. Inability to associate. Lacking in creative or flexible thinking.
3. Obtains only partial credit for the responses.	Lower ability for abstraction. Functionally concrete.
4. Focuses on "differences" rather than "similarities" of the paired items.	Mental retardation. Inflexible thinking.
5. Higher ceiling achieved with or without intratest scatter.	Mental retardation is contraindicated.

Guidelines for the Similarities Subtest (WAIS)

Findings	Clinical Interpretations
6. Expressionless and unresponsive to the presentation.	Deficient intelligence. Unable to formulate the concept.

Digit Span

This subtest measures:

a. Attention and concentration

b. Immediate rote memory (auditory recall)

c. Ability to shift from digits forward to digits backwards.

The Digit Span subtest has been used not only as a measure of intelligence, but also as diagnostic of anxiety, organicity, negativism, and other problems. As a simple memory task, it can be helpful in assessing those of low intelligence and also as a measure of the non-intellective factor known as attention, concentration or freedom from distractability. Other than at the mimimum levels, there seems to be little correlation between digit memory and intelligence. Bright people may do poorly for various reasons, such as: finding the test dull and uninteresting and emotionally based interference. Immediate memory need not be the same as delayed memory, and this clinician has found some mental retardates who have done fairly well on Digit Span, but who were unreliable informants of past events. The test may

also be used as further substantiation of defects in receptive language. Disparate scores between "forward" digits and "backward" digits in favor of "forward" were usual for low mental capacity. The concept of reversal seemed difficult for most retardates. The client's distraction level evidenced by this subtest appeared to have some vocational significance in relation to his ability to attend to the task at hand. The more retarded clients were also unable to comprehend the instructions for digits backward, and in spite of repeated instructions together with examples, continued to give the digits forward. Higher level retardates who were well-motivated and free from distraction were occasionally effective and even exhibited pleasure and competitiveness. Again these subjects were seen as having greater potential for vocational activation.

The need for an immediate recall will, however, threaten and hence overwhelm those ratardates who already have a rather poor self-concept, and this subtest serves the purpose of obtaining such clinical insights. The subtest performance has been known to deteriorate completely with such overly sensitive clients. Generally,

however, retarded clients were less prone to such "anxiety" blocking compared with so-called average subjects. The retarded client who could be successful with 5 digits forward and 3 or 4 digits backward was viewed by this clinician as showing a factor evidencing amenability to vocational functioning.

Guidelines for the Digit Span Subtest (WAIS)

Findings	Clinical Interpretations
1. Inclined to ask for a repetition.	Poor attention and concentration. Poor verbal comprehension. Look for other signs of auditory impairment.
2. Continues to repeat the examiner's expression of the digits "forward" instead of accomplishing the "backward" digits.	Inability to comprehend the verbal directions. Low intellectual capacity. Sign of organicity.
3. Discrepancy between "forward" and "backward" digits in favor of "forward."	Poor auditory memory. Anxiety. Low mental capacity.
4. Continues to contaminate the examiner's test administration.	Hyperactive and distracting. Inability to focus attention.

Guidelines for the Digit Span Subtest (WAIS)

Findings	Clinical Interpretations
4. (continued)	Emotional and/or organic sign.
5. Provides only 1 or 2 of the digits in the sequence or some substitution of the numbers presented.	Deficient in immediate rote memory.
6. All numbers are substituted or perseverates.	Distortion (look for additional emotional signs).

Vocabulary

This subtest measures:

a. Accumulated verbal learning ability

b. Range of ideas

c. Quality of character of thought processes-- ease of expression

d. Qualitatively, the levels of reasoning ability, social and cultural background, abnormal processes.

The literature is almost wholly in agreement that the vocabulary subtest is generally considered the best single measure of general intelligence. Vocabulary involves a person's familiarity with words as well as his ability to express himself through word usage. It is then clear that this kind of information is an important element of intelligence. The ability to make ideas meaningful and to conceptualize experiences in terms of word definitions is one indication of a person's approach to his environment. This becomes strongly suggestive of his level of intelligence.

Of significance in dealing with the mentally retarded, as well as with others, is that vocabulary is

indicative of early education and environment as well as later schooling and life experience. Studies have indicated that vocabulary remains a pure measure of verbal comprehension at all age levels. This clinician has found, however, that older retardates who have functioned outside of institutions, within family settings, and attended special education programs, were much more effective with the Vocabulary subtest. Of course, assimilated verbal ability can be affected by the individual's attitude and sociocultural opportunities. Gentle prodding of the mentally retarded has usually brought forth clarification of poorly articulated speech patterns and has tested the limits of their actual capacity. Thus, the value of the individually administered examination lies in the opportunity to explore what is in the mind of the subject rather than to settle for a pass-fail approach. This clinician often encountered such comments from subjects with limited verbal skills as "I know it, but can't say it." In this case, this examiner has often overcome this problem by asking the subject to express what he feels or to use the word in a sentence. Therefore, the level of intellectual capacity may receive a more definitive diagnosis. This clinician has also encouraged subjects to continue or

elaborate on their definitions in those cases where it was difficult to determine whether the subject did or did not know the meaning.

Contrary to the standardized administration, this examiner has avoided the presentation of the written vocabulary list to those subjects whose reading ability was minimal. It was felt that this procedure generated anxiety and blocking.

This clinician has also found the Vocabulary subtest to be the most profitable means of measuring the subject's ability to communicate. Therefore, it is seen as a rather strong predictor of the subject's readiness and ability to function vocationally. The special value of this subtest in relation to the retardates is that it is assumed to be stable over time and relatively insensitive to neurological deficit. This finding has received some attention by Blatt and Allison.[1]

In researching his own files, this clinician has found that the retardates' vocabulary subtest scores were usually above the other scores. However, this has served

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[1]S. J. Blatt and S. Allison. The Intelligence Test in Personality Assessment (New York: Springer, 1968), pp. 421-460.

to distinguish between the "true" retardate and the "functional" retardate. The latter has been found to be more facile with those activities requiring verbal expression and comprehension.

Guidelines for the Vocabulary Subtest (WAIS)

Findings	Clinical Interpretations
1. Low score achieved with minimal or no intratest scatter.	Low intellectual capacity. Lack of attention to and absorption of the learning experience. Limited exposure to environmental and cultural experiences.
2. One word definitions or providing minor or vague use.	Poverty of word knowledge. Lacking in language expression and range of ideas. Rigidity.
3. Frequently claims, "I know it, but can't say it."	Lacks facility in verbal expression. Memory block (look for additional signs).
4. A pattern of incomplete syntax.	Limited language usage. Underdeveloped language expression.

Digit Symbol

This subtest measures:

a. Attention and concentration

b. Ability to shift (motor set)

c. Capacity for sustained effort

d. Associative learning

e. Visual-motor speed and coordination (dexterity).

This subtest involves the ability to master a new and essentially alien task within a brief time span. It is predicated upon the assumption that the ability to learn relationships between specific symbols and numbers and to reproduce them rapidly in a paper-and-pencil task is one measure of intelligence. Three kinds of learning are involved: (1) what symbol goes with what digit; (2) where it is placed; (3) how efficiently it is written.

As a group, this clinician has seen the retardates perform with greater success on this subtest as compared with the other subtests. Generally, the retardate responds to the task more eagerly and effectively than he would to other routine activities. The motivated, phsically able, less distractible, and assertive subject is

more effective here. Highly passive, uncoordinated, slow-to-respond, and personally resistive and constricted subjects are very poor performers. (Therefore, this subtest has good clinical value for diagnostic and predictive purposes.) The subject's visual acuity must be ascertained, since it has an obvious marked relationship to his ability to perform on this subtest. Significant clinical insights are more easily obtainable in observing the manner and method by which the subject responds to the task. Of special significance is whether the subject has the ability to associate and, if so, on what level. This examiner has observed in addition to the importance of standardized total time allocation for the subtest, noted whether a subject increased his production as he proceeded, or whether he tended to become confused or depressed in his effort. In the latter case, adjunct organic problems might be an interfering factor in functioning. This clinician believes too that the Digit Symbol subtest is generally culture-fair.

Guidelines for the Digit Symbol Subtest (WAIS)

Findings	Clinical Interpretations
1. Difficulty in comprehending the directions. Continues to make errors in the pretest practice session.	Low intellectual capacity. Unable to focus attention. Inability to associate (visual imagery).
2. Comprehends directions but performs slowly, deliberately, and continues to look back to the model.	Deficient in visual motor functioning. Poor visual-associative memory.
3. Continuous erasure of incorrect symbols or is inaccurate.	Visual-motor dysfunction. Impulsive (contaminating). Poor concentration. Blocking (look for additional emotional signs).

Guidelines for the Digit Symbol Subtest (WAIS)

Findings	Clinical Interpretations
3. (continued)	Difficulty in mastering a new and alien task in a limited time span.
4. Requires prodding and encouragement to continue.	Low capacity for sustained effort. (Lacks persistence to complete a routine task). Inability for independent performance. Lacking in motivation.
5. Speed decreases during the performance.	Tendency for confusion (look for other organic signs). Early fatigue. Distractability, unable to maintain attention and concentration.
6. Rotation of paper, works close to paper.	Perceptual problems. Visual problems.

Guidelines for the Digit Symbol Subtest (WAIS)

Findings	Clinical Interpretations
7. Doesn't anchor paper with hand not employed in performance.	Poor habit training. Non-competetive. Unaware of graphic skills.
8. Score is comparatively higher than for most of the other subtests.	Can be mentally retarded but free from distracting forces, unimpaired in visual-motor functioning, motivated and competetive for a relatively routine task.
9. Perseveration of the same symbol or skipping to do the same symbol.	Rigidity such as is seen in the brain-damaged.

Picture Completion

This subtest measures:

a. Awareness of environmental detail

b. Ability to differentiate essential from unessential details

c. Perceptual concentration

d. Visual conceptual ability.

Essentially, the task demanded by this subtest is the visual identification of missing elements in sketched figures. To recognize modifications in familiar surroundings, objects, or structures and as a result make corresponding adjustment is something people do routinely. In order to recognize visually that some essential element is missing in an otherwise completed sketch, the examinee must know the object or situation represented, the particular perspective presented, and the interrelationship between the various major elements that are visible.

The clinician has found that the subject's performance on this subtest, by inference, can offer valuable clues to personality integration as well as to the quality of intelligence relating to such an exercise. A markedly slow response pattern may provide organic signs. The

pointing out of tiny gaps in the lines of the sketch, the inability to identify simple objects, or the tendency to designate them in some bizarre scheme, all suggest distortion of reality.

This clinician has found that the performance of the mentally retarded on this subtest bears a relationship to their ability for perceptual organization. They were also frequently inclined to bring some unseen outside object into the picture to identify it as the missing element. For example, the response to item 4 was "No one in the car." (Actually, handles of the car were missing.) The response to item 6, "No one holding it." (Actually the water is not pouring into the glass.) In effect, the clinician did not consider the subject's responses to be distorted or unreal. For the limited subject, it appeared to be a minimal ability to interpret visually what was demanded of him.

Long reaction time might suggest temporary inefficiency or fear of exposing ignorance or suspiciousness. One helpful insight would suggest that a pattern of long reaction time and correct answers reflects an inclination for deliberativeness and accuracy, and that time is not

too essential to the production. On the other hand, overly rapid responses connote impulsivity with a proneness to carelessness and inaccuracy. Also, better performance on this subtest evidence a greater interest in and attention to environment, which has vocational significance.

This clinician has found the subtest to be a valuable measure in assessing those subjects with rather limited verbal ability, since the subject is allowed to point to the missing element in the sketch if he is unable to name it. Studies have shown a high correlation of the Picture Completion subtest with general intelligence.

Guidelines for the Picture Completion Subtest (WAIS)

Findings	Clinical Interpretations
1. Low score with minimal or no intra-test scatter.	Low intellectual capacity.
2. Providing an outside figure or object as the missing part or element.	Deficit in visual conceptual ability (unable to comprehend perceptually). Unrelatedness. Unrealistic.
3. Long reaction time.	Sensitivity to ignorance. Inability to express the name of the missing part (can point to it). Unassuredness or lack of confidence. Overly deliberative.
4. Inclined to respond quickly -- "Don't know," or "nothing missing."	Impulsivity with proneness to inaccuracy. Unaware of environmental detail.

Guidelines for the Picture Completion Subtest (WAIS)

Findings	Clinical Interpretations
4. (continued)	(Limited in everyday visual experiences). Poor perceptual concentration. Suspiciousness (distrusting). Negativism. Lack of interest in the enviornment. (May be a "functional" retardate due to severe depression.)
5. Naming objects seen rather than the missing part.	Very low intelligence.
6. Insists that persons are missing as in items 4 (car), 6 (pitcher), 8 (violin), and 14 (ship).	Look for other signs of psychopathology such as schizophrenia.

Block Design

This subtest measures:

a. Analytic and synthetic skill

b. Manipulative and perceptual speed

c. Visual-motor coordination and perceptual organization

d. Capacity for sustained effort.

The ability to see meaningful spatial relationships, to analyze visually, and to synthesize abstract geometric designs provide clues to intelligence. Orientation in space is one of the key elements governing the individual effectiveness of behavior in the environment. Spatial orientation can be measured in two general ways: the individual can orient himself within the environment, as in mazes, or he can orient objects within the environment into patterns or designs of his own choice. Block Design is an example of the latter. The subject must construct various geometric parts into meaningful and recognizable entities. Block Design is one of the few subtests in the WAIS in which reasoning rather than memory is the principal component involved.

As is characteristic of all problem solving tasks, the way a subject goes about finding a solution offers

valuable clues to his intellectual functioning and behavior. Non-persisting retarded individuals who were examined by this clinician gave up immediately, saying, "Can't do it," or "Don't know," or just stared blankly at the blocks. Others who seemed to persist, tended to encounter the task by the trial and error method. Such an approach employed by the retarded suggests impoverished visual organizational ability, rigidity and concreteness in performing, and fragmentation in the completion of a task. The easier problems can of course be solved in trial and error fashion. However, the truly retarded individual has not been able to demonstrate the ability to deal with those items requiring the manipulation of more than four blocks. The higher level retardate or the functional retardate with stronger perceptual skills and persistence is able to manage a greater number of items. Actually, this clinician has, on occasion, questioned a previous diagnosis of mental retardation if the Block Design score was equivalent to the higher intellectual levels.

Other factors which may have significance for vocationalization can be observed during the administration

of this subtest, such as excessive cautiousness, impulsiveness (leading to carelessness), and distractability. Subjects with concomitant physical deficits in addition to the intellectual limitations usually exhibit a slowing of motor speed which is reflected in lower test scores. They also may show a pattern of reversing the blocks or angling them.

This clinician is not sure that, for the mentally retarded, the Block Design subtest is a measure of perceptual organization, as it is for the other diagnostic groups. Poor verbal comprehension, distractability and timidity may have been the interfering factors which reduced the efficiency for accomplishing such a task. The subtest also has value in assessing the individual's ability to function independently beyond a standardized instructional period-- discounting any other interfering problems.

The important advantages in the use of this subtest is that it is relatively culture-fair and that it offers an opportunity to observe work habits.

Guidelines for the Block Design Subtest (WAIS)

Findings	Clinical Interpretations
1. Difficulty in comprehending the directions.	Low intellectual capacity. Poor verbal comprehension. Unable to focus on both the visual and verbal directions at once.
2. Low scores achieved with minimal or no intertest scatter.	Low intellectual capacity. Inability to proceed independently.
3. Pattern of fumbling and employs "trial" and "error" method.	Deficient in visual-motor coordination and perceptual organization. Poor planning ability. Fragmented and nonintegrative. Manipulative skills may be poor.
4. Completes task in overtime.	Persistent but noncompetitive.

Guidelines for the Block Design Subtest (WAIS)

Findings	Clinical Interpretations
5. Finishes quickly with obvious inaccuracies.	Impulsivity leads to carelessness. Denial of the obvious (in defense of inability). Lacks recognition of errors (immaturity).
6. Gives up quickly with only partial completion of the design.	Unable to sustain a concentrated effort or to persist. Low frustration tolerance.
7. Disarranges the partially completed or the inaccurate assembly.	Hostile reaction to inability or to the force which has placed him in such an uncomfortable position. Tendency to escape from pressure.

Guidelines for the Block Design Subtest (WAIS)

Findings	Clinical Interpretations
8. Achieved score is above the level of borderline intelligence.	Mental retardation is questionable, especially if the Similarities and Verbal subtest scores are higher too.
9. Inability to cope effectively with more than the four block designs.	Diagnostic of limited mental ability. Look for additional signs of perceptual deficits.
10. Volunteers to place blocks in box after test is completed.	Actively cooperative. Anxious to please and to be accepted.

Picture Arrangement

This subtest measures:

a. Ability to comprehend a total situation

b. Anticipation and planning

c. Visual organization and perception

d. Social judgment and attention

e. Social-sexual adjustment (request that subject give interpretation or the story of his picture arrangement).

The Picture Arrangement subtest attempts to tap a basic understanding of some of the more commonly accepted customs in today's culture. Additionally, the examinee must not only understand the customs, but must also reconstruct the underlying theme when these customs are presented in pictorial but randomized form. It measures the ability to comprehend or size up a total situation from deliberately scrambled clues. In the process, parts must be related to wholes and to each other in a logical manner, and sequential planning is necessary. The subtest furnishes clues as to a person's interpersonal relationships as well as to his ability to gauge social situations.

The cultural background of the person is important in evaluating the results of his performance. The personal implications of some of the sequences give rise to interesting clinical material.

This clinician has found that, with the mentally retarded, there seemed to be a fairly strong relationship between perceptual organizational skill and their effectiveness with this subtest. Also, their ability to understand or to comprehend the visual concept and verbal directions of the task is a rather strong, if not the determining, factor in the level of performance. Again, the degree of success with this subtest, in this clinician's opinion, is relative to the mental retardate's ability for vocationalization, since it deals with those general aspects of intelligence that involve attending to, recognizing, and ordering sequences denoting probable life situations. Also, a comparison with the Picture Completion score can clarify the role of visual acuity in failure.

The most frequent errors on the test are failures to understand sequences. This clinician has found that the retarded (and brain-injured) individuals may simply reposition one card or perseverate in using the same moves

(such as first card to last position) from item to item. This subtest has appeared to be much more difficult for the mentally retarded. The ability to score through items 4 or 5 would be evidence of a favorable potential for dealing with interpersonal relationships and judgment in day-to-day social situations. Also, in researching the files, the clinician has seen significantly lower Picture Arrangement scores for introvertive or unassertive and unexpressive subjects. It would, therfore, suggest that the more outgoing and actively participating person would have the greater potential for vocationalization. It would also follow that positive vocational potential is associated with a person's sensitivity to subtle social clues. Interestingly, Blatt and Quinlon have reported that punctual, as compared to procrastinating, students obtained higher Picture Arrangement scores.[1] The study, however, was based on "normal" students of a limited age range.

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[1]S. J. Blatt and P. Quinlon, "Punctual and Procrastinating Students: A Study of Temporal Parameters," Journal of Consulting Psychology, XXXI (October, 1967), 170-4.

This clinician is of the opinion, too, that the Picture Arrangement subtest has limited application with the more limited and overly sheltered individual, since the sequences need to be readily understood. Also, necessary life experiences can be considered a prerequisite as well as a degree of abstractiveness and flexibility in intellectualization.

Guidelines for the Picture Arrangement Subtest (WAIS)

Findings	Clinical Interpretations
1. Difficulty in comprehending the instructions.	Poor verbal comprehension. Inability to follow the sequence of a situation. Inability to anticipate or plan. Low intellectual capacity. Acutely threatened. Problems in visual acuity.
2. Is able to complete accurately, but unable to give an account of the action or story.	Deficit in verbal expression or language.
3. Low score achieved with limited scatter, only partial credit for items 6 to 8, if any.	Limited intellectual capacity. Limitations in visual organization and perception.

Guidelines for the Picture Arrangement Subtest (WAIS)

Findings	Clinical Interpretations
3. (continued)	Poorly developed skills in making social judgments (lack of experience in problem-solving of such situations).
4. Providing inappropriate explanation of the sequence or information relating to only part of the sequence.	Unable to recognize the total situation. Fragmented and nonintegrative. Deficit in socio-sexual adjustment.
5. Repositions one or two cards only or perseverates in making the same moves. (Does not understand sequences.)	Diagnostic of mental retardation. Look for other signs of organicity.

Guidelines for the Picture Arrantement Subtest (WAIS)

Findings	Clinical Interpretations
6. Ability to achieve effectively beyond items 4 or 5, even with intertest scatter.	Diagnosis of mental retardation is suspect. May be a "functional" retardate with understanding of commonplace social situations.
7. Continues to pick up cards for the examiner.	Anxious to please and cooperate. Avoidance of exposure or inability.
8. Tends to see the elements as unrelated or tries to match the edges rather than to observe the sequence.	Low intellectual capacity. Mental deterioration. (Look for additional signs.)

Object Assembly

This subtest measures:

a. Ability to differentiate familiar configurations

b. Manipulative and perceptual speed in perceiving relationships (unknown objects)

c. Social-sexual adjustment.

An elementary aesthetic sense of composition is called upon for the reconstruction of the parts of an object into a "whole." The synthesis of parts into wholes as an outcome of visual and motor manipulation is considered a valid criterion of intelligence. As in Block Design, speed is a factor in Object Assembly, but the whole must be conceptualized by the subject rather than copied. Therefore, a degree of imagination must be present. The items chosen are commonplace stimulus objects in the environment. The recognition of them from their constituent parts is a sign of mental alertness and, hence, intelligence. Cohen ranked the Object Assembly next to the lowest (Digit Span) in its correlation with general

intelligence.[1] However, it was termed a relatively fair measure of perceptual organization.

The Object Assembly subtest has offered the clinician an opportunity to observe the means by which an individual approaches a task requiring the meaningful juxtaposition of parts. Most of the retarded group tested by this examiner proceeded with the stumbling trial-and-error method. Very few have seen the "whole" upon its presentation for item 3 (the hand) or item 4 (elephant). They have still used the trial-and-error method even after immediate recognition. However, those who were persistent and careful, and had a higher level of frustration tolerance, have done comparatively well with trial-and-error. Again, it was found that the more actively alert, stable, motorally coordinated, and personally amenable subjects demonstrated greater effectiveness with the Object Assembly.

This examiner has been careful to observe the subject's working procedure at all times. Notes were made of such points as the use of trial-and-error, perseveration

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[1] J. Cohen, "The Factorial Structure of the WAIS Between Early Adulthood and Old Age," Journal of Consulting Psychology, XX (May, 1957), 283-90.

tendencies (such as rigidity in trying to position a piece in an incorrect location), ability to capitalize on accidental cues and insight. It has also been useful to ascertain whether and how the subject "discovered" the identity of the object and to ask about previous experience with similar materials. As in all form-board tasks, there is a good deal of practice effect and carryover in this subtest. With the retarded persons, it has been helpful to test the limits by encouraging overtime solutions. In this way, some judgment can be made in cases where some individuals can work efficiently in "untimed" situations and, therefore, can be useful in understanding the subject's approach to problem solving. "Losing" pieces by ignoring those to the side might indicate a reduced visual field. Failure to gestalt the presented figure after a period of trial and error may evidence low intelligence, or perhaps perceptual problems. Also organicity (brain damage) may be detected on the Object Assembly when used in combination with other subtests (lower Digit Span, Similarities, Digit Symbol, and Block Design subtests). Also when a subject piles pieces one on top of another, reality ties can be questioned. This

insight becomes more pronounced when the finding is in combination with other bizarre or "unpopular" responses in the protocol.

This clinician believes that the Object Assembly, like the Picture Arrangement, has special value as an indicator of field independence, since it contains a measure of the "effect of uncertainty." Ir examining past records and some follow-up of the examinees, this clinician has found a relationship between satisfactory vocational rehabilitation and greater facility with the Object Assembly. This "successful" group has also indicated a greater freedom from organic or perceptual deficits in relation to the overall assessment and the historical record.

Mentally retarded subjects have obtained scores generally higher than the mean subtest score. This may be explicable in part by the fact that they are inclined to communicate more effectively in non-verbal tasks. They may have shifted to such an orientation very early in life because of their incapacity for the verbal or communicative functions. This observation appears to hold true for their greater facility with the subtests

as a group within the Performance Scale on the Wechsler Intelligence Scale for Children as compared to the Verbal Scale subtests as a group.

Guidelines for the Object Assembly Subtest (WAIS)

Findings	Clinical Interpretations
1. Low score achieved, intratest scatter and partial credit obtained for items 2, 3, and 4.	Low intellectual capacity. Weak in perceiving relationships. Deficient in visual-motor function.
2. Fumbling, forcing, trial-and-error approach.	Unable to recognize the "whole." Poor manipulative skills. Lack of imagination. Lack of planning and visual organization.
3. Contaminates performance (continuously rearranges some of the correct juxtaposition).	Impulsivity leads to carelessness. Lack of assuredness. Fragmented.

Guidelines for the Object Assembly Subtest (WAIS)

Findings	Clinical Interpretations
4. Scores achieved equated with those groups above Borderline or even Dull Normal.	Effective with trial-and-error method and lucky fumbling. High level of frustration tolerance. Persistent. Lack of anxiety. Visual motor coordination is adequate. Previous exposure to similar materials. Potential for independent functioning.
5. "Losing" pieces by ignoring those to the side.	Reduced visual field.
6. Failure to gestalt the presented figure after a period of trial-and-error.	Low intellectual capacity. Perceptual deficits. Organicity. (Look for additional signs of brain damage.)

Guidelines for the Object Assembly Subtest (WAIS)

Findings	Clinical Interpretations
7. Piles pieces one on top of another.	Possible psychopathology in progress. (Look for additional signs of bizarre or "unpopular" responses.)
8. Attempts to peek across the screen while examiner is positioning the pieces of the configuration.	Impulsive. Hyperactive. Poor inner controls. Insecure. Overly competetive. Insensitive to social amenities.
9. Placing pieces around the periphery of the "profile" and the "hand."	Suggests severe visual disorganization.

Personality and Emotional Status

Generally the research has evidenced a lack of stable and valid results among the many studies of personality testing of retardates. Since the standardized assessment techniques presently employed do not provide sufficient predictability for practical use, the clinical insights and interpretations of the psychologist become vital. Research studies and practical experience in working with the mentally retarded have led to the conclusion that personality or psychological factors (social adjustment and adaptability) appear to be most important in the vocational success of this limited group. This clinician has found that the standardized "pencil and paper" tests are of little use. They are not appropriate for the mentally retarded who have limited reading ability, and they do not tap the characteristics important in job success. If work habits and attitudes are to be effectively evaluated, it is necessary that observations be made and recorded, that behavior be rated by the psychological examiner, and if necessary, later, by other trained observers. In this way a general rating of readiness for employment or employability may be adequate. The clinician

can locate strengths and weakness, estimate capacity and potential and search out interfering personality and emotional problems during the session. He can then provide pertinent conclusions and recommendations. However, the individual is not a "constant." Behavior varies with situations. Therefore, if possible, evaluation should be made a continuous process, involving further objective tests when timely, observation in various activities, and work trials of various types. This clinician, in assessing the mentally retarded, has been concerned specifically with present behavior and personality characteristics, especially those characteristics which relate to vocational potential. Positive characteristics might still require further strengthening, and negative characteristics would require elimination or amelioration. Thus, the individual would meet with less trainer and/or employer resistance and be able to function more satisfactorily.

This clinician has found that, as a group, the mentally retarded have either been separated from the usual environmental experiences, have been overly sheltered or rejected by their families, of have been treated as "special" people in their educational or vocational

training programs. This has resulted in emotional and social maladjustments or underdevelopment with limitations in realizing their preferences, decision-making, and independent functioning. They are, therefore, more prone to approach interpersonal contacts by responding as passive, overly cooperative, withdrawn, rigid or timid persons. They have been made to develop a rather dependent (wait-for-direction) role so that they are inclined to continuously protect their need for security, attention, and acceptance. It is, therefore, difficult to break through this well-defended barrier during the psychological assessment session. They may react differently to other situations.

This clinician has used all tests, whether they are known as measures of intelligence, achievement, or aptitude, and the like, to obtain an assessment of the examinee's psychological functioning. As previously indicated, scores by themselves are meaningless and tend to be prejudicial. Of supreme importance are the observations and the evaluation of the individual's mannerisms, attitudes (motivation), and facility in responding to each of the tests. Therefore, each test provides very

much more information about the individual rather than a score of a specific ability or function. In addition to the actual testing session, the examiner has carefully observed the person's behavior at arrival and during the interview or conversational portion of the session.

Insofar as the investigation of the individual's psycho-social behavior and personality are concerned, this clinician has found three tests to be more profitable than most others in relation to assessing the mentally retarded. These are: The Sentence Completion Test, The Draw-A-Person Test (Draw-A-Man, Draw-A-Woman), and The Bender Visual Motor Gestalt Test. These tests were taken from a group of personality tests known as "projective" or "unstructured" tests or techniques. Projective techniques are any form of test materials which, being unstructured or minimally structured, are organized by the individual in such a way as to reveal the dynamics of personality. An inkblot, for example, is a chance form; hence, it is said to be "unstructured." Clay, finger paints, figure drawings, and completion of unfinished sentences, also constitute projective techniques. A person interprets or uses these things in such a way as to

reveal various aspects of his personality and behavior. The particular value is that these projectives make it possible to interpret the psychological dynamics as reflected by the individual's behavior in the test situation. These depth-dimension diagnostic devices are firmly anchored in an empirically evolved projection theory. Therefore, the data elicited by these tests revolve around the individual with reference to his own interpretation and his own conception of his role in his life space.

The Sentence Completion Test (Sacks Sentence Completion Test - SSCT

The SSCT consists of sixty sentence stimulus items to which the subject must respond with the first thought or elaboration to complete the beginning of the sentence. The examiner merely instructs the subject, "I am going to start a sentence and you must finish it with the first thing that comes to your mind. Now finish this! I always wanted to ....." Under ordinary circumstances, the test is completed with pencil and paper by an examinee. However, especially with the mentally retarded group, for obvious reasons, this clinician has administered the test verbally in a one-to-one situation. The "unstructured"

administration of the test has been profitably used to obtain an estimate of the individual's elaboration of feelings, thinking, relationships, and facility of language. The test is, therefore, used as a projective technique, since it becomes a method of ferreting out personal material. Another advantage of its use is that the response material provides clues for further probing by the examiner. It is especially more valid for the intellectually limited person who is more inclined to produce the deeper (suppressed and repressed) layers of his personality in comparison with the more intellectually sophisticated whose responses are at a higher level of consciousness. In other words, much of the disclosed personal material contained in the responses should be considered information of which such an examinee is aware. Its dynamic sources are still to be uncovered.

The SSCT does make known to the clinician some aspects of the psycho-social status of the person not readily elicited by other devices. Close examination of the process discloses that this method is not too different from the inkblot, thematic, or drawing procedures. In each, the testee is required to dip into his

apperceptive storehouse of knowledge in order to respond to the blots, pictures, and stimulus patterns. The clinician's immediate concern is to elicit behavior which will lead to inferences and interpretations that characterize the individual's perceptual organization and response to the forces in his life space.

The SSCT provides the clinician with information for his interpretation of fifteen of the subject's attitudes. The sixty items found in the test can be broken down into the fifteen categorical attitudes, as follows:

Attitude toward mother	- items 14, 29, 44, 59
Attitude toward father	- items 1, 16, 31, 46
Attitude toward family unit	- items 12, 27, 42, 57
Attitude toward women	- items 10, 25, 40, 55
Attitude toward heterosexual relationships	- items 11, 26, 41, 56
Attitude towards friends and acquaintances	- items 8, 23, 38, 53
Attitude toward superiors at work or school	- items 6, 21, 36, 51
Attitude toward colleagues at work or school	- items 13, 28, 43, 58

Fears	- items 7, 22, 37, 52
Guilt feelings	- items 15, 30, 45, 60
Attitude toward own abilities	- items 2, 17, 32, 47
Attitude toward past	- items 9, 24, 39, 54
Attitude toward future	- items 5, 20, 36, 50
Goals	- items 3, 18, 33, 49

In examining the SSCT, it is obvious that for the lower level and even for many of the higher level retardates, the wording may be beyond the individual's ability for verbal comprehension. Since the purpose of the technique is to elicit projections of psychosocial material rather than scores, this clinician has modified the manner of its presentation, wording, and has eliminated inappropriate items or added others which may be pertinent to the subject. In many instances, this clinician has merely used the sentences to stimulate areas of conversation to obtain a free flow of expression from the subject. It is the opinion of this clinician that the examinee's performance in relation to the SSCT is also correlative with his ability to function vocationally. The level and the appropriateness of the response to the SSCT appears to be in direct relation to the subject's capacity for receptive and expressive language and his emotional health. It has

provided this clinician with the kind of data from which he was able to obtain some estimate of the subject's psychosocial functioning, and perhaps his "social" intelligence.

This clinician has found a distinct difference between individuals with limited intellectual capacity and those with average and above average intelligence in the manner of their response or reaction to constellations of items which describe particular attitudes. The items are those referring to attitude toward women, attitude toward heterosexual relationships, attitude toward own abilities, attitude toward the future and goals. Attitudes are formed or developed by ample experiences. Also, the person with sufficient intellectual capacity is able to develop attitudes which have some relationship to independent thinking. On the other hand, the mentally retarded individual has not been sufficiently or suitably exposed to similar environmental experiences nor has he had ample opportunities for independent problem-solving or entertaining opinions. This clinician has found mental retardates to be quite threatened upon the introduction of such matters. They are usually unable to respond

adequately, refuse to express their thinking, or provide some inappropriate or alien response.

The more limited individual with the inclination for passivity and introvertiveness is usually found to seemingly ponder over the item without providing an adequate response. Occasionally, a specific perseverative response is given throughout the test, such as "is good." It is most important that the clinician is sure of the examinee's full comprehension of the item presented. If the items as presented are obviously too difficult for the subject, the clinician should make whatever alterations are necessary. For example, instead of "I feel that my father seldom.....," the examiner can restate, "My father never....." Some items may not lend themselves to such alterations, and instead require simple discussion or presentation as a question. For example, "My fears sometimes force me to....." This can be changed to "Tell me what happens to you when you are afraid?" Nevertheless, sufficient data can be obtained by making such modifications.

Generally, the mental retardate has been less able to respond adequately, if at all, to those items relating

to sexual matters. This finding was probably due to a lack of information and experience regarding sociosexual situations. It appeared to be a rather vague or sensitive area in their "living space."

Generally, this clinician has found that the mentally retarded tended to overestimate success more than the average functioning group did. They appeared to have less realistic self-concepts, and the self-estimate varied not only with the individual, but with intelligence, sex, and situation. Actually, in the clinician's opinion, the examinees expressed their aspirational levels, or what they thought would present them in a more favorable light, rather than their feelings about themselves.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
(Major attitudinal areas)	
1. Family (see p. 6 - attitudes 1, 2, and 3)	
a. Appears to be objective in most responses.	Higher level of intelligence. Positive familial relationships.
b. Appears to idealize in most responses.	Strives for acceptance. Maintain security. Overly tied to family (look for dependency clues). Convertiveness.
c. Appears to depreciate in most responses.	Unstable or poor family relationships. Criticalness. Overly assertive or aggressive.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
1. c. (Continued)	Contrary.
	Transfer of guilt or anxiety.
d. Feels fairly treated.	Demonstrates affect.
	Superego is in evidence.
	Self-disciplined, self-contained.
	Self-denial.
	Submissive.
	Compromising.
e. Feels victimized.	Feelings of rejection.
	Hostility (surfaced or unsurfaced).
	Look for other clues of uncooperative-ness.
	Self-pity.
	Attention seeking.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
f. Describes affect as warm and demonstrative.	Accepted by family. Look for other clues of overprotection, infantilizing.
g. Defies parental authority.	Poor inner controls. Poor communication with family. Look for other signs of potential for unpredictable and explosive behavior. Anxiety. Low frustration tolerance. May submit because of fear and dependency.
h. Siblings mentioned.	Accepting or rejecting (concerned with rivalry and competition). Conscious of status in family.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
2. Sex (see p. 6 - attitudes 4 and 5).	
a. Accepts sex role.	Psychosocial development is adequate. Cognizant of heterosexual relationships. Look for additional signs of higher level intelligence.
b. Rejects sex role.	Check for other signs of confusion and conflicts in identification. Lack of experience and information.
c. Respects and is fond of the opposite sex.	Usually associated only with parent, sibling, or teacher, supervisor, etc. Convertive, suppresses inner feelings, desires, etc.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
3. Interpersonal relationships (see p. 6 - attitudes 6 to 9).	
a. Distant in interpersonal functioning.	Lack of affect. Fear of exposure or inadequacies. Lack of experience. Fear of insult or injury. Unprepared for adequate communication.
b. Disapproves of people, feels victimized.	Has had negative experiences. Isolated and misinformed. Look for other signs of emotionally based interfering problems. Sensitive to criticism and authority.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
c. Dependent.	Unassuredness.
	Lacking in self-confidence.
	Poor ego development.
	Submissive, unassertive.
	Looks for direction.
	Lacking in motivation.
	Inactive.
d. Close in interpersonal relationships and relates easily.	Feelings of adequacy.
	Ability to communicate.
	Cooperative and accepting.
	May be overly compromising.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
e. Approves of others and feels fairly treated.	Has had positive experiences. Gregarious. Emotional stability. Contented. Accepts criticism and supervision.
f. Independent.	Adequate self-concept. Self-confident. Explorative. Motivated. Active. Self-directed.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
4. Self Concept (see pp. 6 and 7 - Attitudes 10 - 15).	
a. Glorifies self, exaggerates abilities.	Denial or ignorance of inadequacies. Overly sensitive to inability. Covertive. Unrealistic. Unrealistic parental expectations.
b. Underestimates self-rejects self.	Poor self-concept. Has been emotionally abused. Lacked opportunities for self-realization and independence. Dependency oriented. Poorly motivated.

Guidelines for the Sacks Sentence Completion Test (SSCT)

Findings	Clinical Interpretations
c. Objective, realistic, and accepting.	Stability of temperament. Accepts supervision. Motivated. Potential for vocationalization.

The Draw-A-Person Test

This technique is known by a number of other titles, i.e., figure, person, man, or woman drawing test, and the Machover Test when used as a device for assessing intelligence. The examiner cannot help noting the differences in the figures produced by different examinees in compliance with the verbal instructions to draw a person, man or woman. The impetus that has made this test the most widely used clinical technique is Machover's analytically oriented volume. The acceptance of this mode of personality appraisal stems from the notion that an individual's interpretation of his perceptions is deeply rooted in his experiences. Machover stated that:

> The body, or self, is the most intimate point of reference in any activity. This investment in body organ, or the Perception of the body image as it has developed out of personal experience, must somehow guide the individual who is drawing in the specific structure and content, which constitutes his offering of a "person." Consequently, the drawing of a person in involving a projection of the body image, provides a natural vehicle for the expression of one's body needs and conflicts. Successful drawing interpretation has proceeded on the hypothesis that the figure drawn is related to the individual who is drawing with the same intimacy characterizing the individual's gait, his handwriting, or any other of his expressive movements.[1]

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[1]K. Machover, Personality Projection in the Drawing of the Human Figure (Springfield, Ill.: C. C. Thomas, 1948), 18.

This clinician has found that for the mentally retarded, this technique is less threatening. The directions are very simple and can be comprehended easily. On rare occasions a few subjects have not been able to respond at all or they have delayed for some time before making a response. The possible reason for this was that they had little or no experience in graphomotor reproduction without the visible prototype. This evidenced a limitation in visual conceptual skills. Other reasons were that the examinee had little cognizance of human detail and relationships or that he felt overly anxious and/or oppressed by the stimulus figure (person, man or woman). Usually, the quality, detailing, proportions, and integration of the figures have not been executed with as much proficiency when compared with the average functioning groups. It is most difficult to separate the drawings of the mentally retarded from those with organic problems. Interfering physical handicaps in graphomotor functioning (visual and/or motor) should be investigated by looking for additional evidence, historically or from other findings in the session.

Occasionally, examinees who had routinely busied themselves in graphomotor (drawing) activities were able to produce a rather commendable figure. This did not necessarily correlate with their intellectual capacity. Some mental retardates may be especially motivated, interested, or curiously stimulated in reproducing visual objects in their immediate environment. Again this may be interpreted as a "compensation" or "transfer" because of their limitations in interpersonal functioning. Also, it has been found that retardates who were more efficient with perceptually oriented activities (non-verbal), as compared with activities requiring conceptualization (verbal), accomplished a relatively well-drawn figure. Generally, however, this clinician has not found appreciable differences in the drawings of mentally retarded and those of normal intelligence. The interpretations of the findings such as erasures, overworking, size of figures, location of figures, body features, etc. are also associated with the mentally retarded. On the other hand, the "inquiry" after the figure has been completed, has been profitable in obtaining insights into the subject's personal make-up and functioning. The older adolescent and even the young adult retardates will occasionally identify

the figure with a younger sibling, relative, or acquaintance. Other figures have been associated with cartoon characters or other representations of interest to juveniles. The differences in temperament, language, expression, thought content, imagination, alertness, movement, etc. may be measured from the subject's responses to the inquiry. The flow and content of the responses depends just as much on the inventiveness and ingenuity of the examiner as it does on the subject. Specific and relevant questions should be posed to the subject who is not as responsive or elaborative.

Most of the retardates examined by this clinician have effected a rather passive, friendly, and uncommitted type of figure, as if to avoid any intrusion upon their security. In response to demands for dealing with more complicated or new activities, they may become obstinate, rigid, and unresponsive, or they may be overly compliant and seemingly unaware of their inadequacies in order to avoid further discomfort. The retardate with adjunct emotionally-based problems has been frequently found to have a rather long delay in responding to the test or that he or she simply stated, "Can't do it," or "Don't want to do it." Occasionally the subject has responded

after this clinician had waited for ten to fifteen minutes, without further direction. On other occasions, depending on the seeming stance of the examinee, gentle and supportive urging elicited the response to the test. In some instances, the clinician activated the delayed response by, "You can draw the man any way you like."

This clinician is of the opinion that the sole use of the Draw-A-Person Test to distinguish and predict the subject's personal ability to function vocationally is unreliable and invalid. However, it has value in providing clinical observations, and thus it adds insights to those already gathered during the other portions of the session.

Guidelines for the Draw-A-Person Test

Findings	Clinical Interpretations
1. Confused order in drawing the body elements, i.e., (a) torso, (b) legs, (c) head.	Mental confusion. Poor planning. Disorganized. Look for additional signs of organicity.
2. Large size.	Aggressivity. Poor inner controls. Potential for explosiveness. Unguarded.
3. Small size.	Restricted. Fearful of exposure. Introvertive. Covertive.

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Guidelines for the Draw-A-Person Test

Findings	Clinical Interpretations
3. (continued)	Non-elaborative.
4. Missing major body elements, i.e., only the head is drawn.	Lack of association with interpersonal matters. Concerns relating to body image. Repression or suppression of sexual thoughts and desires. Low intellectual capacity if it is a crude representation.
5. Many erasures and second attempts.	Anxiety. Impulsivity. Unassuredness. Lacks persistence in completing a task.

Guidelines for the Draw-A-Person Test

Findings	Clinical Interpretations
6. Figure contains movement and additional related objects, i.e., holding a basket, pail, cane, smoking, etc.	Imaginative. Elaborative. Look for additional signs of higher intellectual capacity.
7. Verbal response to the figure.	
a. Minimal or no response.	Low intellectual capacity. Non-elaborative. Rigid. Lack of language skills. Passive. Unmotivated. Obstinancy. Covertive.

Guidelines for the Draw-A-Person Test

Findings	Clinical Interpretations
7. b. Expansive, i.e., responds to pertinent questions, makes up story, identifies, etc.	Assertive. Conversational. Imaginative. Alert. Impressing. Fantasises.
c. Incoherent, unrelated or bizarre in responses.	Overly anxious and threatened. Poor comprehension. Look for additional signs of emotional pathology and/or organicity.

Bender Visual Motor Gestalt Test (BGT)

It was Bender's contention that the individual's perceptual organizing activity was reflected in the end product and that part of the organizational process was inherent in the subject's psychological and/or organic state(s).[1] Bender recognized the adaptability of this technique as a clinical tool and applied this test to a wide variety of psychiatric and organic states. The purpose of the test was to detect these pathological conditions and the reason for the divergence of the reproduced designs from the models. Its greatest use clinically is to help in the detection of brain damage. It is also widely used as a projective technique to obtain clues of personal functioning. However, this clinician would caution that such findings are merely signs of possible pathology. These signs, in addition to other observations and clues derived from the overall contact with the individual, may be of some diagnostic value. Diagnostic inferences are based on the manner of executing the model

[1]L. Bender. A Visual Motor Gestalt Test and Its Clinical Use. L. G. Lowery, Ed. Research Monographs No. 3, American Orthopsychiatric Association, New York, 1938.

reproductions as well as the final product since both reflect the perceptual organizing process. Distortions and misperceptions reveal by their graphic representations whether they stem from faulty cortical organization or dissociated loss of contact with the reality of the model designs. This clinician is of the opinion, too, that the test is not used as a test of educational or language accomplishment, but of maturation processes and is in that way more comparable to the so-called performance tests. As Bender has indicated, past studies have found that the measures obtained from such tests seemed to have some relation to the prediction of the level of vocational potential.

The administration is very simple and, as previously indicated, it has been found generally to be nonthreatening to the examinee. The person is presented with each of nine geometric figures in a relatively ambiguous situation and asked to make copies of them. The basis for the test is that the examinee must proceed in a manner unique to his own past experience. His reactions reflect his "style of life," and he will structure or deal with the task at hand in some way that approximates his tendencies to be himself.

The supposition is that a person will tend to react to the test situation in the way he characteristically reacts, and from these reactions the examiner can infer something of his personality characteristics.

The test has been frequently used as an introductory test in a battery of tests, since it is not seen as an anxiety-provoking activity. Also, when fatigued, a subject's disturbances in visual-motor functioning tend to become more exaggerated. This clinician has been careful to observe the subject's manner of approach to the BGT as well as his actual performance. The mentally retarded have been more uncertain about what is expected of them, since the instructions merely are: "Here are some figures (or designs) for you to copy; just copy them the way you see them on this paper." (Sheets of plain white unlined paper, $8\frac{1}{2}$" x 11", are used). Frequently their delay in reacting required further direction, encouragement, and support.

The same principles of inferential and configurational analysis have been applied in interpreting the test protocols of the mentally retarded. Generally this clinician has not found any profound differences between

the performances of the higher level retardates and the average groups. As a matter of fact, the mentally retarded, excluding those with severe organic and personality disorders, perform with greater accuracy. This may very well relate itself to the retardates' stronger motivation for routinized and concrete demands. They usually take more time in completing their reproductions. The less asured and insecure subjects have frequently remarked, "I don't know," "I can't do it," "I'm getting mixed up." Highly sensitive and anxious subjects with a low frustration tolerance have been prone to erasing, overworking, and completing their work with obvious errors or incompleteness.

The clinician's inspection of the subject's record has frequently furnished findings which have implications for vocational activation, such as: (1) estimates of coordination (line quality); (2) adequacy of ego functions (sequence and size); (3) impulse control (reaction time, use of paper space, graphomotor pressure); (4) accuracy (counting substitutions); (5) underreaction to emotional stimuli (difficulty with curves-flattening); (6) low intellectual capacity (retrogression, simplification, fragmentation), simplification and inability to perceive

and complete complex Gestalten; and (7) organic brain damage (incoordination, irregularity of dots and circles, -- cards 1 and 2- poor line quality, over-all inconsistent appearance of the test record).

Mental retardation may be accompanied by and is sometimes the result of severe emotional disturbance from an early age, resulting in withdrawal and cognitive inhibition. When adults suspected of mental retardation perform relatively better on figures 7 and 8 than on figures A and 4, emotional factors are likely to be highly significant.

This clinician has not used this test as the sole device to provide an analysis of the subject's personal and visual motor functioning. Also, the presence of a single finding, no matter how blatant or extreme its manifestation, hardly justifies a diagnostic conclusion about the individual. Diagnosis should rest on more substantial grounds, such as congruent evidence from a number of sources or repetitive evidence from a single source. The clinical information derived from the BGT has added to the overall diagnostic impression of the examinee and his ability for coping with work-related situations.

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
1. Poor cocrdination, lines of the drawings are irregular rather than smooth-flowing.	Tension. Anxiety. Organic brain damage.
2. Resketching and retouching of a single line (overworking).	Uncertainty. Insecurity. Anxiety.
3. Heavy lines (heavy pencil pressure) - frequently occurs in conjunction with increased sizes of figures, irregular sequence on the paper, and excessive use of space.	Hostile impulses (not frequently found in the mentally retarded group, but if so usually in the higher level retardates).

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
4. Heavy lines accompanied by incoordination.	Organic brain damage. Acute anxiety over unresolved drives.
5. Faint lines (inadequate pencil pressure).	Timidity. Anxiety. Use of withdrawal as a defense.
6. Perseveration (a). Refers to the persistent or continued use in a subsequent drawing of features of a preceding stimulus figure.	Decreased ego control. Impairment in reality testing. Arrest in development due to a traumatic event. Inability to attend completely to a new stimulus due to a "lag" effect of a previous stimulus.

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
6. (continued)	Low intellectual capacity.
7. Perseveration (b). Refers to the continuation of the Gestalt beyond the limits called for by the stimulus, i.e., continuation of the dots or circles in figures 1, 2, and 5.	Rigidity in personality. Inability to shift from a set. Severe compulsivity. Organic brain damage.
8. Difficulty in overlapping (figures 4, 6, and 7).	Simplification and fragmentation. Organic brain damage (in the areas of visual-motor organization).
9. Elaboration or doodling (changing the appearance of the Gestalt form markedly).	Impairment in ability to concentrate. Disturbance in associative functions. Psychosis, especially manic states.

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
9. (continued)	Disturbance in cognitive control. Neuroticism and intense anxiety. Disturbance in ego functioning (may be temporary phenomenon).
10. Fragmentation. Manifested most frequently in incomplete drawings. Occasionally it is shown in drawings in which the parts of an integral whole are dissociated.	Low in both the abstraction and organizational capacities. Low intellectual capacity. Loss in ability to synthesize perceptual stimuli. Organic brain damage. Psychotic disturbances.
11. Simplifications. Refers to the replacement of a Gestalt figure	Unwillingness or inability to exert the necessary effort and

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
11. (continued) with a different and simplified figure(s), i.e., reproduction of figure 7 as two non-overlapping figures, each reproduced accurately.	concentration. Severe ego disturbance. Inability to deal with a reality situation. Low frustration tolerance, negativism or overt hostility.
12. Retrogressions. Indicated by the substitution of more primitive for more mature Gestalten, provided other evidence for the distortions in the drawings cannot account for these phenomena, i.e., use of loops instead of	Loss of effectiveness in ego functions. Impulsivity. Hostility (obstinacy).

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
12. (continued) circles or curves, dashes for dots, and dots for circles.	
13. Rotation. Refers to change in the orientation of the major axis of the figure. Does not refer to accurate reproductions when the stimulus or paper is rotated. May range from mild to severe (axis rotated from 15 degrees to 180 degrees). Rotation may be counter-clockwise or clock-wise.	Low intellectual capacity. Psychotic states. Antagonistic or oppositional (counter-clockwise). Organic brain damage.

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
14. Difficulty in reproducing angles.	Low intellectual capacity. Organic brain damage. Excessive reaction to emotional stimuli (increased angulation--acute angles becomes more acute).
15. Difficulty in curvature. Refers to any change in the curvature of a figure, such as: flattening, increase in the amplitude, spiking, irregularity or change in total size of the curve(s).	Over-response to emotional stimuli (increase in amount of curvature). Suppression of, or insensitivity to emotional stimuli (decrease in amount of curvature).

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
16. Progressive increase or decrease in size.	Low frustration tolerance and acting out tendencies (more prevalent for those with increase in size). Potential for explosiveness (increase in size). Introversion (decrease in size).
17. Shift in position of stimulus cards or in the position of the paper.	Rigidity. Anxiety. Oppositional tendencies. Conflict with authority figures. Look for additional signs of impaired visual focusing.

Guidelines for the Bender Gestalt Test

Findings	Clinical Interpretations
18. Use of space. Refers to excessive or constricted use of space in accomplishing the test.	Excessive use of space (assertive, acting-out, aggressive, rebellious). Restricted use of space (withdrawn, passive, convertly hostile, strict superego).
19. Position of the first drawing.	Timid and fearful (tend to place drawing in upper left-hand corner and often reduce size of drawing). Egocentric or psychopathic (tend to place drawing in middle of paper and frequently enlarge size of figure).

Academic Achievement

For the individual who has had access to the ordinary school, social and intellectual experiences and challenges, past achievement is often one of the best indices of future accomplishment. Therefore, achievement tests can be frequently used as tests of aptitude for related types of activity. An achievement test is used to ascertain what and how much has been learned or how well a task can be performed. The focus is on evaluation of the past without reference to the future, except for the implicit assumption that acquired skills and knowledge will be useful in their own right in the future. Achievement in a given task may be an index of promise in a related task. The difference, therefore, between an aptitude and an achievement test appears more in its use than its content. An aptitude test is used to judge the speed and ease with which skills and knowledge (achievement) will be acquired. Knowledge of certain types of facts may be indicative of facility for the learning of other types of facts. For example, a test of typing achievement may be a good measure of aptitude for stenography, and a test of information concerning science may be a good predictor of success in medical training.

For the person who has not had access to the normal social and educational experiences, such as the mental retardate, the validity of any aptitude and achievement measurement is highly questionable. The mentally retarded person has been either overly sheltered or rejected and isolated. He or she has been the non-recipient of equal opportunities and has, therefore, evidenced lags in his psychosocial and cognitive development. Therefore, estimates of his level of achievement may not serve as good predictors of his ability to function vocationally. However, this clinician has used the Wide Range Achievement Test (WRAT) by Justak not only to obtain a measure of the basic educational achievement, but, more importantly, to search out the areas of weakness which would require remediation and strengthening. Also, this clinician has employed the WRAT to obtain additional insights into many aspects of the examinee's learning impediments, approach to tasks, and motivation. The literature has pointed out the wide use of this test as part of a test battery in assessing the mentally retarded.

The WRAT was first standardized as a convenient tool for the study of the basic school subjects of reading

(word recognition and pronunciation), written spelling, and arithmetic computation. It was designed as an adjunct to tests of intelligence and behavior adjustment. The authors stated:

> The method of measuring the basic subjects was advisedly chosen to achieve the following ends: (1) to study the sensory-motor skills involved in learning to read, spell, write, and figure, (2) to provide simple and homogeneous content, (3) to avoid duplication and overlapping with tests of comprehension, judgment, reasoning, and generalization studied by means other than reading, spelling, and arithmetic, (4) to free diagnostic inferences from common confusion due to operational semantics, (5) to permit validity analyses by the method of internal consistency.[1]

The WRAT consists of three subtests; each subtest is divided into two levels, I and II. Level I is designed for use with children between ages of 5 years 0 month and 11 years 11 months. Level II is intended for persons from 12 years 0 month to adulthood. The subtests at both levels are:

1. Reading: recognizing and naming letters and pronouncing words.

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[1]J. F. Justak, S. W. Bijou, and E. R. Justak. Wide Range Achievement Test (Wilmington, Del.: Guidance Associates, Inc., 1965), p. 1.

2. Spelling: copying marks resembling letters, writing the name and writing single words to dictation.
3. Arithmetic: counting, reading number symbols, solving oral problems, and performing written computations.

The administration of the WRAT is not time consuming (twenty to thirty minutes). In addition, studies have reported rather high correlations with other reading, spelling, and arithmetic achievement tests. The WRAT authors have also reported high intercorrelations between the Wechsler Adult Intelligence Scale and the WRAT.

This clinician has carefully noted the subject's approach to the WRAT in order to obtain either corroborations or variances with his behavior in relation to the other tests. The behavior and performance are of course projected to the individual's ability to function vocationally. Persons with primary mental retardation (without adjunct or inherent organic problems) were found to be more facile with the spelling and reading subtests as compared with the arithmetic subtest. This finding is congruent with the research literature which indicates a

strong relationship between reading ability and intelligence. However, this clinician has not found this relationship to be a perfect one, since some of the mentally retarded persons had learned to read above their established level of general ability. However, it is not the purpose of this treatise to explore the field of reading disability and the reasons for such problems.

Reading ability is important to the mentally retarded, as it is for everyone. However, it may not be essential for vocational functioning where the comprehension of reading matter is not an integral part of the job. The recognition of words or simple phrases for everyday living requirements should be acquired, such as for travel (signs, directions, etc.), simple purchases, personal safety, etc. If at all possible, such inadequacies must be remedied or strengthened by heroic means.

This clinician has administered the pre-spelling level, pre-word level, and the oral section of the reading and arithmetic subtests to every mentally retarded examinee, even though the instructions require these conditions only under set circumstances. In so doing, a fuller range of the examinee's abilities are realized. In addition, it offers the opportunity of diagnosing

essential learning disabilities apart from inadequate educational experiences.

This clinician has usually administered the WRAT at the close of the test battery since the nature and content of the test recalls the subject's academic experiences. In many cases, it may serve to arouse feelings of inadequacy, resistance, suspicion, self-depreciation, and hostility. The placement of this test during the assessment requires much consideration in order to avoid the rejection and contamination of the entire examination.

The examinee's behavior during the WRAT performance should also be observed clinically for its interpretative value in association with all other findings.

Guidelines for the Wide Range Achievement Test (WRAT)

Findings	Clinical Interpretations
1. Errors in copying symbols of the pre-spelling test.	
a. Rotations and distortions.	Visual-motor problems. Look for additional signs of organicity. Low intellectual capacity.
b. Erasing, overworking, labored.	Impulsive, insecure, anxious, inability, etc.
c. Unable to complete within time limit (check time for the actual completion).	Compulsive. Lag in graphomotor activities. Look for additional signs of visual-motor defects. Low intellectual capacity.

Guidelines for the Wide Range Achievement Test (WRAT)

Findings	Clinical Interpretations
1. (Continued)	
d. Bold reproductions with pencil pressure.	Aggressive. Hostile.
2. Remarks: "Don't know," "Can't do it" or yawns, exhibits signs of fatigue, etc.	Sensitive to inability. Difficulty in persisting. Unmotivated. Juvenile reaction. Resistance to special demands.
3. Long reaction time.	Unexpressed resistance. Unable to comprehend. Unable to perform the task due to lack of experience or poor retention (low intellectual capacity).

Guidelines for the Wide Range Achievement Test (WRAT)

Findings	Clinical Interpretations
4. Pondering without admission of ignorance.	Sensitive to ignorance. Unfamiliar with value of supervision. Low intellectual capacity. Look for additional signs of language deficit (expressive and/or receptive).
5. Equivalent of above grade 3 in spelling, arithmetic, and reading.	Ability to manage ordinary daily living and unskilled (competetive) job requirements. (However, other assets may compensate for deficiencies).
6. Unable to start counting with any number but number one.	Extreme rigidity (pathological). Severe intellectual retardation.

Guidelines for the Wide Range Achievement Test (WRAT)

Findings	Clinical Interpretations
7. Unable to keep spelling words on lines.	Impaired visual and/or motor functions.
8. Reads numbers separately in sequence, i.e., 1 - 2 - 3, instead of the whole number 123.	Ignorance of the subject. Low mental capacity.
9. Reversals in numbers of in words.	Perceptual difficulties.
10. Substitutes unrelated words in the reading subtest.	Wild guessing. Dyslexic-like signs.

Manual Skill, Dexterity and Aptitudes

As the review of the research literature has indicated, the mental retardate's ability to deal with activities requiring dexterity and visual-motor functions is a strong predictor of his potential to perform vocationally. This clinician is of the opinion, however, that the user of psychomotor tests (manipulation and motor speed) must have clearly in mind the nature of the job he wishes to predict, since studies show that various significant motor behaviors are largely independent. Therefore, when selecting workers, one must find a particular performance test similar to whatever task one is investigating.

This clinician has found the Purdue Pegboard Test to be of value in assessing the mentally retarded for vocational activation, and whenever possible, has regularly included it in the battery of tests.[1] The test by itself may not be significantly valid, but predictability is improved when combined or added to the tests in the battery. Simply stated, it is a test of manipulative dexterity designed to assist in the selection of employees

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[1]Purdue Pegboard Test. Developed by Purdue Research Foundation, Purdue University (Chicago: Science Research Associates, Copyright, 1948).

in industrial jobs requiring manipulative dexterity, such as assembly, packing, operation of certain machines, and other routine manual jobs of an exacting nature. It provides separate measurements of the right hand, left hand, and both hands together. It also measures dexterity for two types of activity: one involving gross movements of hand, fingers, and arms; the other involving primarily what might be called "tip of the finger" dexterity needed in small assembly work. The test also measures the examinee's eye-hand coordination, an essential element in performing most tasks. The clinician may obtain clinical insights into the manual dexterities of his subjects which he then subjectively translates into occupational terms. Since the test is individually administered, it also offers the opportunity to clinically assess the subject, such as his approach to performing a task, his work habits, motivation, ability to comprehend and take directions, persistence, and the like. It also allows the examinee to demonstrate either an increase or decrease in effectiveness after a number of trials or exercises. Most mental retardates who are not overly impeded by adjunct receptive language and perceptual or motor deficits perform these tasks as well as the average person and even

better. They seem to be more motivated and less distracted as compared to their efforts with the other tests. The simple and almost non-verbal routine required in performing the beginning subtests are not overly threatening and encourage a forthright and meaningful effort.

A wide disparity in laterality may signify coordination problems and may be due to an interfering organic impairment. When this occurs, there are other signs associated with visual motor impairment in the protocol of the test battery, such as the Bender Gestalt Test, and the Wechsler Adult Intelligence Scale (Performance Scale). Inefficiency with the Assembly subtest of the Purdue Pegboard Test may be reflective of a lack of language comprehension, inability to persist in a task, distractability, inability to comprehend and deal with a sequential task, inability to manipulate small component parts, etc. Personal reactions and problems are easily obtained during the administration of the test. In spite of repeated instructions to pick up the pegs from the cup one at a time, some subjects will persist in picking up two or three each time. Some individuals become so thoroughly engrossed in the task that they fail to heed any other stimulus. It may be considered "perseverative" or

"rigidness" in such instances, since there is difficulty in making a shift from an ongoing activity. Similarly, some individuals continue to place the pegs in alternating holes instead of each hole as directed. Of course, the clinician must first be sure that the subject is able to comprehend the language content of the direction before making a clinical interpretation.

For the mentally retarded, preliminary practice is essential. He is unable to demonstrate his full ability until he has become familiar with the reaction required. Therefore, there are significant vocational implications for the examinee who is unable to proceed with the test proper or any one of the subtests even after repeated instructions and preliminary practices have been provided. Also, differences in the way the subject attacks the test appear to be of major importance in assessing his performance. For example, a subject may be deliberate and accurate in his performance, but too slow to achieve a competitive result. On the other hand, he may be inclined to be speedy, but contaminating and erratic in his performance. Either of these approaches imply two different sets of behavior in relation to vocational considerations,

such as in training and/or employment. (Dexterities are measured for both speed and accuracy).

This clinician has not routinely included other structured aptitude tests in his test battery for an obvious reason, that is, the unpreparedness of the mentally retarded to cope with the "built in" skills required to tackle such tests. Higher level language comprehension, reading ability, and special experiences are the usual components associated with such tests. Occasionally, an aptitude test such as the Minnesota Clerical Test has been administered to a higher level retardate to meet a special need.[1] Generally, however, this clinician has found that such individuals do not produce a competitive result. The ability to perform competitively on this test should arouse a suspicion about the diagnosis of mental retardation.

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[1]D. M. Andrew, D. G. Paterson, and H. P. Longstaff. Minnesota Clerical Test (New York: The Psychological Corporation, 1961).

Guidelines for the Purdue Pegboard Test

Findings	Clinical Interpretations
1. Significant disparity between scores of the right and left hand subtests.	Motor incoordination. Look for additional signs of organic dysfunction. Confusion in laterality.
2. Inability or inefficiency with the Assembly subtest.	Lack of language comprehension. Lack of persistence. Defective in sequencing. Distractible. Deficit in tip-of-the finger dexterity. Emotional component.
3. Continues to disregard pertinent instructions.	Unable to comprehend need for direction. Unable to comprehend language or poor auditory attention.

Guidelines for the Purdue Pegboard Test

Findings	Clinical Interpretations
3. (continued)	Rigidity. Hostility.
4. Continues beyond time allocated.	Perseverative. Insensitive to direction or supervision when overly engrossed in activity (juvenile reaction).
5. Develops own pattern or schematic in accomplishing the task, i,e., alternating holes for placement of pegs.	Unable to comprehend language. Compulsivity. Inability to shift. Look for additional signs of inappropriateness or fixation.
6. Slow and deliberate approach.	Fearful of making errors. Insensitive to competition or pressure.

Guidelines for the Purdue Pegboard Test

Findings	Clinical Interpretations
6. (continued)	Low mental capacity.
7. Looks to the examiner for approval. Loses time for accomplishing the task.	Unsure of performance. Requires support and structure. Emotional immaturity.
8. Production does not improve or it deteriorates with repeated trials.	Poorly motivated. Lacks competitive feeling. Early fatigue factor - look for additional signs in the battery. Diffusion of efforts. Lacks necessary persistence. Low mental capacity.

Guidelines for the Purdue Pegboard Test

Findings	Clinical Interpretations
9. Gives various excuses in order to interrupt or terminate the task.	Overly sensitive to inability. Inability to persist or concentrate. Immature reaction to a task.
10. Overly fast and erratic in performance with evidence of contamination.	Impulsivity. Poor inner controls. Hyperactivity. Prone to substitute speed for accuracy. Denial of inadequacy (poor self-concept).

Interest

This clinician has found that the usual interest inventories or tests are not usable with the mentally retarded, since the reading ability or the language comprehension required to complete such investigative techniques are beyond their means. More important, however, is that interests are assumed or realized by experiencing a great variety of tasks or job trials. In doing so, the normal individual may be able to confirm more reliably what he likes or dislikes. Again, the mentally retarded person has usually not had the opportunity to experience various vocationally oriented activities. Such individuals, too, have been gradually regimented in realizing their lack of ability for jobs other than those of routine, repetitive, and low-level skilled types. This has been especially true for those persons who had been in special education classes containing work-study programs. In most instances, such stated preferences seem to be appropriate and relative to the individual's intellectual capacity, personality structure, and potential. On the other hand, this clinician has found that mentally retarded individuals who have not been exposed to any formal guidance

or special programs were prone to express unrealistic, over-or-under aspirational preferences, usually obtained from family members or others. Additionally, the mentally retarded persons, especially those in the latter group (unrealistic), have very limited knowledge, if any, of the "world of work." Limited social interaction and reading facility make it so.

This clinician has reasonably assumed that the importance which may be attached to expressions of specific interests clearly varies with the maturity and experiential background of the individual. The expression of specific preferences of the younger subjects usually appear to be unstable and do not provide useful data in the assessment process. The older individuals provide a greater constancy of responses to an investigation of their interests.

One of the ways this clinician has obtained understanding of the subject's interests is by "tested interest." This is used here to refer to interest as measured by objective tests, as differentiated from inventories or check lists which are based on subjective self-estimates. It is assumed that, since interest in a vocation is likely

to manifest itself in action, it should also result in an accumulation of relevant information. Therefore, if a subject should express an interest in, for example, woodworking, this clinician would test the individual's knowledge of tools, procedures, related vocabulary, and the like. Also, the degree of competency achieved in certain segments of the assessment battery and the attitudes and affective reactions to them could provide additional clues to the examinee's preferences.

This clinician has employed a simplified "Work Interest Check List" with a degree of suitability and satisfaction. The Check List contains forty activities which are related to job categories, such as routine office work, recordkeeping, sales clerk, taking care of household chores and children, hospital work, farm and garden work, maintenance and repair work, mechanical work, machine operation and factory work. A copy of the Check List is provided at the close of the discussion of the "interests" on page 214. The subject who has the ability to read the items is instructed to check those activities he would like to do best even if he has never done them. The clinician handles the Check List verbally

with those who are unable to read. The language of the Check List and the mode of presentation can be altered in relation to the limitations of the subject. The result does not offer any valid or exact measure of the individual's interests, but has been found to provide some meaningful estimate of his attitudes, motivation, and conception of work. It also may convey additional data about the examinee's potential to interact personally, his ability to cope with environmental demands, independently, and his drives. For the most part, this clinician has found the mentally retarded to be lacking in their ability or readiness to respond sufficiently or suitably to the investigation of their interests. They seem to persist in associating interest with preparedness and competency. Their unassuredness and poorly developed self image preclude such projections of interests. In the past, they usually have not been asked, "What are you interested in doing?" or "What kind of work would you like to do?" Instead, because of the ready acceptance of the retardate's limitations, he has been directed and not questioned or counseled concerning his vocational preferences. Response records of the mentally retarded are

frequently non-specific and mixed with little indication of previously conceived or thought-out ideas about their interests. Records which contain either the affirmative or negative response to most of the itemized activities are evidential of the subject's inability to comprehend or to deal with vocational choices.

This clinician has found that the mentally retarded females and males follow similar interest patterns when compared with their sexual counterparts of average intelligence. The men are more interested in physical activity such as manually oriented labor, while the women veer to people, clerical work, music and art, and so on.

Work Interest Check List

This is a list of different kinds of work. Put a check mark in front of those jobs you would like to do. This will help us find out in what you are interested.

Put a check mark if you think you would like the job even if you have never done it. Leave the space empty if you don't like the job.

_____Doing arithmetic problems.

_____Keeping business records, like sales slips and bills

_____Copying numbers or words neatly and orderly

_____Taking care of supplies

_____Filing papers

_____Being a salesclerk

_____Answer the telephone

_____Talking to customers

_____Cooking or baking

_____Working in a supermarket

_____Playing games with or taking care of children

_____Washing dishes, setting tables and waiting on tables

_____Caring for other peoples' hair and nails

_____Waiting on people and taking care of their clothes

_____Hospital work

_____Running an elevator

_____Driving a tractor

_____Picking and planting crops

_____Working on a farm

_____Gardening

_____Taking apart bicycles, automobiles or typewriters

_____Checking machines to find out what's wrong

_____Greasing and oiling machines

_____Repairing vacuum cleaners, fans, motors

_____Wiring and splicing electrical connections

_____Painting, plastering or paperhanging

_____Working with saws, drills and screwdrivers

_____Fixing drains and faucets

_____Doing carpentry, floor-laying, roofing

_____Fixing watches, locks and cameras

_____Cutting, sewing, repairing or pressing clothes

_____Running machines in a factory

_____Driving a truck, car, or bus

_____Inspecting things in a factory

_____Window washing

_____Floor polishing or rug cleaning

_____Working in a laundry

_____Working in a hospital.

Guidelines for the Work Interest Check List

Findings	Clinical Interpretations
1. Over-aspirational.	Attempts to compensate for inferiority. Vocalizes aspirations of family and others. Insensitivity to limitations.
2. Under-aspirational.	Insecure and unsure about ability. Poorly developed self-concept. Timidity.
3. Does not respond to most items, if any. States, "I don't know."	Unable to comprehend language. Lack of information. Suspicious. Low mental capacity.

Guidelines for the Work Interest Check List

Findings	Clinical Interpretations
4. Affirmative or negative responses to most items.	Unable to comprehend language. Impulsive reaction. Unable to understand the nature or purpose of the inquiry.
5. Repeatedly states, "I can't do it."	Overly sheltered - infantilized. Passive. Unmotivated. Low mental capacity.
6. Specific preference is stated and relative to estimate of capacity and potential.	Realistic. Motivated. Potential for self-realization. Recipient of supportive efforts.

Summary

The format for assessing the mentally retarded for vocational activation has been presented in this chapter. The importance of obtaining background information was emphasized, and this should include estimates and descriptions of the subject from teachers, medical specialists, and family members.

A battery of tests was presented which has been found to be usable in providing an assessment of the individual's readiness and ability for vocational activation. The tests were discussed in terms of the clinician's findings and interpretations (insights) based on the examinee's responses. The responses included verbal, motoric, attitudinal, and emotional reactions to the demands of the tests. The format extended beyond the mechanical reporting of psychometric measurements to include a clinical interpretation of the psychologist's findings.

A selected battery of tests which this clinician has used with the mentally retarded was discussed in terms of its special applicability for the mentally retarded population. However, individual diagnosis and

avoidance of grouping into traditional categories were emphasized. The focus was on the identification of areas of strength, rather than weakness, and that the weaknesses should not be used to eliminate individuals from receiving rehabilitation services. Instead, weaknesses and interfering problems were to receive remediation and improvement. The basic philosophy of the assessor is that every individual has his limitations, and it is not what a person has lost that counts, but what he has remaining. Also, it was noted that the clinician should be supportive and encouraging in his examination of the individual in order to elicit a maximum performance.

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CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

1. The most stable predictive indicators have been found to be measures of manual dexterity in relating to criteria of work competence. It must be noted, however, that these findings were obtained in workshop training centers and schools in which small industry types of productivity were emphasized. It was also demonstrated that dexterity measures (in this case the Purdue Pegboard Test) are extremely stable and are the most highly predictive of employability ratings.

From a clinical point of view, the examinee's manner of dealing with the test identify those important characteristics which have predictability for vocational functioning. The characteristics are demonstrative of competetiveness, motivation, language comprehension, ability to take direction and supervision, persistence, cooperativeness, and the like.

2. The attempt to establish predictive validity in measures of personality and social behavior has been far less successful than with measures of motoric efficiency. None of the measures of personality factors employed in some studies yielded significant predictive values.

Another study employed a variety of instruments designed for personality assessment including self-report and projective techniques. It was concluded that the latter, especially the Sentence Completion Test, were among the most useful predictors of a number of diverse criterion variables. This clinician has used the Sentence Completion Test in an unstructured and flexible manner, eliciting information not only as a result of the examinee's response to the given stimulus, but also to develop topical conversation. This served to reflect the numerous personal characteristics of the individual. This clinician agrees with the studies in that personality characteristics of the mentally retarded are essential determinants of vocational functioning.

3. The interactions of cognitive with non-cognitive functions in adaptive behavior are extraordinarily complex, especially as learning accumulates over

time. Intellectual capacity is not a unitary function but a complex of overlapping, partially independent functions. The functions themselves are subject to modification by other internal developmental factors and by external environmental influences, and no test is culture-free. Developmental norms applicable during childhood under the specifiable and highly controlled conditions of the prevailing patterns of school culture become of dubious validity beyond the years of childhood and beyond the bounds of the standard cultural environment. Therefore, the results of a psychological assessment cannot provide an absolute prediction of an individual's feasibility and/or potential for vocational functioning. The personal presentation, quality of thinking, ability levels, etc. may change from time to time and from setting to setting. The variable experiences awaiting the mental retardate may spell success or failure for him. These conditions make definite predictions improbable. The clinician believes that the provision of a psychological assessment should only serve to lend direction for the extension of the vocational rehabilitation process and to point out weaknesses which require strengthening and remediation. Most mental retardates have the potential for

making gains in their adaptive behavior and, therefore, the assessment should not serve to eliminate an individual from the opportunity of vocational rehabilitation efforts. Once in a vocational setting, this clinician has frequently witnessed remarkable changes in behavior, including accumulation of general environmental information, alertness to every day detail, passive to more assertive and outgoing behavior, impulsivity to stronger inner controls, etc. On the other hand, the clinical findings and interpretations do serve to provide some clinically subjective estimate of the individual's potential for vocationalization.

It would appear to this clinician that the following points can be briefly stated:

a. measures of intellectual competence taken in childhood cannot be assumed to describe intellectual competence in the adult years.

b. Intellectual status may change markedly over time, especially in those cases where cultural deprivation may be operative.

c. There is no "real" intelligence inherent in the person, but only a variety of

functions which may be measured in different ways and yield various intelligences.

d. General intelligence probably contributes to the variance of most adaptive functions, but less to the processes of adult adaptation than to those of childhood schooling.

e. The evidence suggests that, for a difference in general intelligence to have an appreciable effect on the practical handling of an individual case, the difference must be sufficiently obvious that no refined instruments of measurement will be needed.

4. The experience of the examiner is critical in order to obtain meaningful estimates of the individual's functioning. Data on behavioral variables reflect the "human instrument" involved in their procurement. Psychologists inexperienced in working with the retarded tend to interpret their responses differently than those who are experienced.

5. This clinician is in agreement with the research studies, in that when the objective is to estimate preparation for steady work at a small industry type of occupation under controlled workshop conditions, a combination of manual dexterity measurements and social maturity estimates may be satisfactorily predictive. This has not, however, been established for vocational adaptation beyond the training workshop, and it does not take into account either basic personality factors or environmental conditions of external employment.

6. There is no evidence as yet that any battery of tests, biographical data or rating scales can provide actuarial probabilities of success or failure on any criteria of adult adjustment sufficient to relieve the assessor from the exercise of his best "clinical" judgment.

7. The most consistent and outstanding finding of all follow-up studies is the high proportion of the adult retarded who achieves satisfactory adjustments by whatever criteria are employed. This is, of course, especially true of those at mild level, on whom most of the studies have been done. However, it also holds for the

retarded as moderate and even severe levels. This should guide those who work with the retarded to the adoption of a more generally optimistic expectation than has generally prevailed in the past. The evidence suggests that it is more appropriate to make an assumption of positive adaptation on some meaningful criteria of employability and social integration until negative evidence appears, rather than to assume a poor prognosis until positive evidence appears. The latter attitude, which has been highly prevalent in the past, has the general effect of creating its own proof by failing to provide available means for facilitating successful adaptation.

8. The process of adaptation is manifold, which means that success and failure can be measured on many dimensions and at many levels of achievement. Because of this complexity, there is a tendency to oversimplify the criteria by which successful adaptation is judged. This is reflected in the selection of clients as feasible for rehabilitation services. The concept of vocational success or employability may have many meanings and may be represented in a wide variety of profiles. The narrower the criterion employed, the more it will tend to reject

candidates who might very well qualify on a wider or more flexible criterion base.

9. Adult adaptation of the retarded may take considerable time, especially when retardation is related to social and cultural deprivation. The movement from instability to stability may take years, but it may be greatly facilitated by flexible, open-ended programs of social-vocational training. Failure at any point should never be taken as conclusive. The general principle, supported throughout the research literature, is that predictions of adaptive success are generally more reliable than predictions of failure. This should lead the professional worker with the retarded, who is really client-centered, to be very cautious in accepting negative prognoses as final evidence of unfeasibility.

10. At the present time, research has not established a clear actuarial basis for predicting the adult adjustment of the retarded. Some indicators of types of outcome have been tentatively identified and measured. These can be used as partial evidence of general feasibility for rehabilitation services. Also, they can serve as guides to the most likely direction of training. However, there is no predictive formula sufficiently refined and

verified which can separate in advance of service those who will succeed from those who will fail. Many devices, of course, will discriminate the extreme cases, but usually with little more efficiency than the clinical judgment of an experienced psychologist.

11. Nearly all studies which attempted to develop reliable predictive tests for future employability or occupational success have measured both predictors and criteria within the training setting. There has been very little research validating such tests on employment or other criteria beyond the training setting and especially on long range adult adjustment.

It cannot be assumed that behavior which satisfies a training work supervisor will satisfy an outside employer. We cannot assume that the individual will adapt to external employment as he has adapted to the workshop. Until evidence of predictive continuity is verified, there can be no valid substitution of guesswork for individual case follow-up.

12. The research finding that predictive validity decreases rapidly over time and over the stages of training hold special significance for the professional worker

with the retarded. It suggests that predictive measures should be used more as estimates of preparation for the next step in training or placement than as determiners of the long-rage future. This appears to hold particularly for measures of work efficiency and of social competency.

13. The measurement found most useful in predicting employability is that of manual dexterity. This is exemplified by the Purdue Pegboard Test. It appears to have a fairly stable predictive validity over time for productive output in small industry types of activity, but may not be generalized to all types of occupation or to all aspects of adjustment.

14. It is clear that measurements of general intelligence are broadly related to social and occupational adaptation in adult life. However intelligence tests cannot be used with any precision as isolated predictive instruments. The psychologist must be warned against the assumption of the equivalence of educational classifications based on intelligence measures such as "educable" and "trainable" to employment classifications such as "competitive" and "sheltered." There are statistical relationships but the terms are far from being equivalent.

Intelligence measures themselves are not all equivalent in what they measure and in the level of functioning they indicate. For adult purposes, the Wechsler Adult Intelligence Test is both more valid and more diagnostic than other tests. In general, a recently obtained Wechsler Performance Scale score appears to be more predictive of adult occupational success than other intellectual measures. Intelligence measures have a fairly high stability over time in the general population, but they are less stable in the populations of retarded persons. This seems especially true among those retarded persons presumed to reflect cultural deprivation. Furthermore, the individual client can always be the exception to any statistical population tendency. Old intelligence scores are not to be trusted in making present decisions.

15. At the present time no reliable means of predicting success and failure on the basis of personality factors has been established. Such facets of personality as self-concept and level of aspiration are extremely complex and are strongly influenced by the complex variables of social class and ethnic background. However, the

basic research in this area still remains to be done. Everyone agrees on the importance of personality factors in determining adult adjustment, but no one has yet established valid and reliable methods of measuring and predicting them.

16. The importance of the clinician's experience in assessing the mentally retarded for vocational activation in determining the reliability of psychological measurements cannot be overstated. If psychological measures are to be used in assessment procedures, their value will depend among other things on the experience of the psychologist in the interpretation of the responses of the retarded.

17. More concentration of services should be extended for the development of social skills and less on formal training. The emphasis should be on the development of skills which are conducive to improved family and community living.

18. The science of actuarial prediction has by no means replaced the art of clinical judgment, and there is strong doubt that it ever can. The assessment of the mentally retarded is a step-by-step process in which the

next step ahead, the immediate future, is far more predictable than the long-range outcome. The individual client and his needs should not be subordinated to the impersonal machinery of selection-ratios and cut off scores in determining his eligibility for services.

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